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Staff Perspectives on the Experience of a Problem-Based Learning Staff Development Module: Impact on Their Pedagogical Stance

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STAFF PERSPECTIVES ON THE EXPERIENCE OF A PROBLEM-BASED LEARNING STAFF DEVELOPMENT MODULE: IMPACT ON THEIR PEDAGOGICAL STANCE

A thesis submitted to the Dublin Institute of Technology in part fulfilment of the requirements for award of Masters (M.A.) in Third Level Learning and Teaching

by

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Declaration

I hereby certify that the material which is submitted in this thesis towards award of the **Masters (M.A.) in Third Level Learning and Teaching** is entirely my own work and has not been submitted for any academic assessment other than part-fulfilment of the award named above.

Signature of candidate: .....

Date: 12/6/03

Staff Perspectives on the Experience of a Problem-Based Learning Staff Development Module: Impact on their Pedagogical Stance

Abstract

The current shift towards problem-based learning (PBL) internationally within higher education, and the transfer of some programmes within higher education in Ireland into PBL programmes, suggest that staff development needs to be a key component in any PBL implementation strategy. PBL radically transforms the roles and functions of both staff and student and challenges teachers' beliefs and accompanying perceptions about the teaching and learning process. This study documents the impact of a PBL staff development programme on the participants and assesses the impact on their pedagogical stance.

The approach to this study was guided by my belief in the socially constructed nature of reality, which is underpinned by post-positivist philosophy. I used a case study, which is qualitative and interpretive in nature, to generate an emergent theory. Data was collected using a questionnaire. Following the analysis and interpretation of the data a member check was carried out by providing the participants with a copy of the findings and asking them to critically reflect and comment on the findings.

The findings indicate that the participants' personal experience as PBL students is considered to be an effective method for them to acquire the necessary skills to be both a PBL student and to implement PBL with their own students. In addition, participants note a more student-centred approach in their teaching as a consequence of undertaking the module.

A fundamental issue that arose in the course of this study is that PBL involves a major change in staff beliefs and perceptions about the teaching and learning process. Designers of future staff development modules should consider the implications of this for their programmes, in both continuing to provide professional development to teaching staff implementing PBL, and in targeting a wider audience among lecturing staff to adopt the PBL philosophy.

Acknowledgment

The researcher would like to thank Terry Barrett for her assistance and support throughout the course of this study. The researcher would also like to acknowledge and thank the participants who took part in this study, for their time, courtesy and co-operation.

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Introduction

CHAPTER 1

INTRODUCTION

This introduction outlines the background to the study and describes why I chose this subject as the basis for my thesis. The definition of problem-based learning (PBL) used in this study is specified and the researcher is introduced, including the rationale and aims of the research together with its focus and limitations. It also includes a section on the Dublin Institute of Technology's staff development programme and specifically an overview of the module on which this study is based. I present some of the key issues concerning problem-based learning and outline the wider contextual factors that relate to it. I argue the relevance of this research to current issues in Teaching and Learning, the Dublin Institute of Technology's Strategic Plan, employers concerns and the relevance to my own professional development.

1.1 Background to the Study

Problem-based learning (PBL) is one amongst many student-centred approaches that is gaining increased popularity in the education of third level students and has in recent years made an appearance in Irish Higher Education (Physics Department, DIT; Veterinary School, UCD; Dental Hospital, Trinity College Dublin).

My study has arisen directly out of my own experience of problem-based learning. In November 2000 the DIT Teaching and Learning Centre introduced a new Postgraduate Diploma in Third Level Learning and Teaching. I was one of the first participants on the Diploma and it is here that I was introduced to PBL. The course had a specific module on PBL but the subsequent modules also used a problem-based learning framework.

I have found the Diploma an invigorating and refreshing experience. As a result of doing the course I have been engaged in debate and discussion with other members of staff and it is in response to such comments as '*Yeah, but is it worth all that effort?*'

'That's all very well but it wouldn't suit my subject' 'I hate that group thing, why can't they just tell you' 'That sounds interesting but what exactly is it?' that prompted me to formulate my research proposal and I aim to address some of these issues in this study.

Furthermore, I would like to explore PBL in more depth and eventually become more engaged in facilitating students in the PBL tutorial process and in helping other staff to implement PBL into their curricula.

The traditional model of teaching at third level is by lecture or tutorial. The emphasis is on the delivery of material in a one-way direction while the students listen passively. Although it might appear to be the most economical and easiest way to deliver information, this I maintain, promotes a surface approach to learning and it jars with my understanding of what teaching is about: namely to provide opportunities for learning and to assist students to learn for themselves which in turn promotes deep learning.

The central question for me is '*How can I help my students improve the quality of their learning*?' Problem-based learning would seem to answer this question for me as my views on teaching and learning are informed by constructivism. In this theory of learning, learning is a process in which the learner actively constructs knowledge Gijselaers (1996). This is not a new theory and goes back as far as the classical educational methods used by Socrates and Plato, and in more recent times to Dewey (1938). I agree with Savery and Duffy (1995) that PBL is one of the best examples of a constuctivist learning environment.

Unlike Ramsden (1992) and Barrows and Tamblyn (1980) who discount the lecture as being detrimental to learning given the passive nature of the role of the student, I think that the lecture does have its place. Indeed research by Saroyan and Snell (1997) suggests that the lecture can be as efficient as any other strategy, depending on the learning outcomes, the context and the delivery. What I am suggesting is that there is room for other methods of teaching and learning based on research, which support constructivist theories of learning, and PBL is one such approach.

1.1.1Problem-based learning (PBL)

Problem- based learning is an educational approach not just a teaching method. It is according to Howard Barrows (Barrows and Tamblyn, 1980, p. 1) who introduced it in the 1960s

> *The learning, which results from the process of working towards the understanding of, or resolution of, a problem. The problem is encountered first in the learning process*

In this form of PBL, the learning is active, problem-centred, student-centred, collaborative, integrated, interdisciplinary, and utilises small groups in a specific tutorial process. The premise of PBL is that the students will improve their ability to think critically, analyse problems, and generalise the knowledge to different circumstances and develop a motivation for self-directed learning (Ryan 1993; Barrows 1986). As students in PBL are required to actively engage in problem solving, high-level cognitive processes such as investigation and analysis are developed (McAlpine and Clements, 2001).

Students develop the skills of learning how to learn, of communication and teamwork, as well as developing their understanding of specific knowledge areas. PBL has proven successful in many institutions worldwide, and a substantial body of evidence relating to its effectiveness has been published (Bridges and Hallinger, 1996; Albanese and Mitchell, 1993).

PBL is not without its critics and many remain unconvinced. Margetson (1991) puts this down to the innate fear of change but more fundamentally to the challenge it has for beliefs about education and concepts of knowledge. PBL radically transforms the roles and functions of staff and requires a conceptual shift in staff's view of teaching. Both student and teacher have to get used to a different way of approaching learning and teaching. This may not be conducive to everyone and can be problematic for both teacher (Taylor and Burgess, 1995; Wilkie, 2002) and student if adequate training is not provided. Woods (1994) maintains that any gains from PBL are dependent on

addressing the skills associated with problem-solving, self-directed learning and group work, and has designed measures to help prepare students in these areas.

Other criticisms relate to gaps in student knowledge, implementation issues, problem regeneration (finding a new source of problems for learning sessions), staff training, hybrids masquerading as PBL and assessment (Boud, 2002; Boud and Feletti, 1997). Despite these problematic areas PBL has much to offer and the implications for professional education using problem-based learning are both far-reaching and valuable (Margetson, 1994). Indeed the very fact that sceptics of PBL are often drawn into heated debate about the very nature of teaching and learning is in itself I think a very worthwhile exercise.

1.2 Rationale for the study

There has been concern about the apparent decline in the effectiveness of institutions of higher education in developing professional graduates who can think critically, integrate technical and practical knowledge, reflect on practice, and work cooperatively with colleagues (Boud, 1985; Barrows, 1986). Margetson (1991) argues that graduates are being produced who know *that* rather than know *how*. The ability to critique issues and information and make informed decisions as well as possessing work related skills is also highlighted by the Department of Education and Science in their White Paper on Education and Training (1995)

Measures to address these issues have been established, such as setting up staff and organisational development programmes to help improve the quality of education, by the promotion of more student-centred learning and by the inclusion of key skills programmes in the curriculum. The abilities that have been highlighted by government and industry as central to the development of future professional can be promoted by PBL. According to Margetson (1991, p. 39) PBL '*encourages open-minded, reflective, critical and active learning*'

1.2.1 The Changing World of Work

As the new century starts, technology has transformed the nature of work and learning for many, and graduates will require different skills and capabilities than were needed previously. William Bridges (1994) in discussing the changing nature of the workplace and recent job patterns characterises the new employment realities as being marked by responsibility, flexibility, adaptability and mobility. Long-term employment is a thing of the past, careers are evolutionary, and the old way of defining oneself by a 'job description' is being replaced by 'the work that has to be done'. The general pattern is that graduates will be more likely to change jobs more frequently than before or their jobs themselves will change. As the Department of Education's White Paper on Education and Training (1995, p. 2) points out: '*Work content will increasingly be made up of intelligent tasks requiring initiative and the ability to adapt*' Adaptability, flexibility, and life long learning will be the issues of this century. Not just learning 'that' but learning 'how' will be the key features of the purpose of education as the knowledge society develops (IUTN, 1998).

Within the global context of technology and the arrival of the information society a broader knowledge base is required. Employer's expectations are changing and what is required of our graduates in today's 'knowledge' society. The Department of Education and Science, White Paper on Adult Education, Learning for Life (July 2000, p. 76) refers to some of the challenges posed by these changes for education and work:

> *An instructional, utilitarian focus in education or training is no longer likely to be adequate to the needs of the modern worker, who increasingly requires problem solving, team work and leadership skills in a work environment requiring flexibility, adaptability and mobility. There is then an increasing convergence in the requirement of the workforce and the obligations of a broadly–based, person-centred active learning approach.*

Abilities and attributes connected with employability and which contribute to the development of the individual have been variously termed key skills, core skills, transferable skills and career management skills. These skills, such as teamwork, problem solving, critique, collaboration, communication and IT skills are now seen as equally important as technical knowledge and have been highlighted by government and

industry as central to the development of future professionals (White Paper on Adult Education, July 2000; Dearing Report NCIHE, 1997). Although there is still some disagreement as to which skills are 'key', some people are now using the definitions as laid out by the Qualifications and Curriculum Authority, which is the guardian of standards in education and training in England, Wales and Northern Ireland.

Figure 1 Key Skills Definition

- Communication
- Application of Number
- Information Technology
- Working with Others
- Improving Own Learning and Performance
- Problem Solving

Qualifications and Key Skills Definition University of Bradford
Source: http://www.bradford.ac.uk/excellenceplus/qca.pdf.

The emphasis on key skills in higher education has been steadily increasing in recent years (Drew, Thorpe and Bannister, 2002). These key or transferable skills are skills that are generic skills which can be transferred from one situation to another, from academic contexts to work and social contexts, and from one work and social context to another. One of the most compelling arguments for the introduction of problem-based learning at undergraduate level is the increasing pressure on higher education to produce competent graduates who have both 'knowledge' and 'key skills' Barnett (1994).

1.2.2 Challenges in Higher Education

In the context of Irish third level education Professor Skillbeck (2002) in a comprehensive report which is set to shape Government thinking on the university sector, investigates the challenges facing Irish universities. The report points to the significant change in recent years in the structure, function, and financing of universities. The unprecedented growth and change poses many challenges for the future. These have been characterised by expansion and diversification in a number of areas. Changes in the social, physical and intellectual environment and developments in technology and communications have stimulated debate on a whole range of issues which relate to higher education.

Similarly, referring to English third level education, Bates (2000, p. 8) identifies three aspects of these changes: '*the need to do more with less, the changing learning needs of society, and the impact of new technologies on teaching and learning*'. Biggs (1999) states that these changes are evidenced by larger class sizes, more vocationally oriented courses, larger numbers of students going on to university, increasing student diversity and higher education fees. These changes in turn pose challenges for both teachers and students, as they demand more flexibility in time, place and mode of delivery.

Higher education will have to move away from traditional structures to meet the demands of the changing environment. This will have implications for the lecture, which is still the mainstay of most higher education institutions, despite the fact that it has been criticized and much maligned for not promoting higher order skills such as conceptual understanding, independent learning, and problem-solving abilities (Barrows, 1986). The new orientation according to Skilbeck (2001, p. 11) will be '*less the scholar and teacher as source of canonical knowledge and more the student as learner and client*'.

In the world beyond college students will be dealing with uncertainty and unfamiliar problems in unfamiliar contexts. Students should be enabled to deal with this uncertainty by being adequately prepared through the way in which their programme of study is delivered and the qualities that are developed. The pressure on higher education to produce such capable graduates has led to a growing interest in learning and teaching

at tertiary level, accompanied by greater discussion of pedagogical issues (Ramsden, 1992). The emphasis placed on the importance of *learning to learn* and *lifelong learning* (Dearing Report NCIHE, 1997; DIT Mission Statement, 2001; Woods, 1994) should increase the support for introducing PBL because of the way in which it is seen to address these issues.

1.2.3 Adult Learning

PBL as a teaching strategy incorporates many of the principles of adult learning. This is very relevant to higher education as more and more adults and mature students are taking part in third level education. Malcolm Knowles in the 1970s was arguing that the needs of adults, as learners, were different from those of children. He coined the phrase *andragogy* meaning teaching adults. Adult learning models such as andragogy (Knowles, 1984), self-directed learning (Brookfield, 1991) and experiential learning (Kolb, 1984) share some of the same assumptions with PBL. They all see the concept of the learner as being increasingly self-directed and active in the learning process. The role of the teacher changes from being one of director and transmitter of information to a more facilitative or guiding role. The student sees his own prior experience and that of his fellow students as a rich source for learning. Real life tasks and problems provide the stimuli for learning (Kelly, 2002).

1.2.4 From the Teaching Paradigm to the Learning Paradigm

The challenges facing higher education have implications for teaching and learning in general and not just in connection with work related knowledge and skills. In the words of the European Commission (1995, p. 23) '*The information society is going to change teaching methods by replacing the excessively passive teacher/pupil relationship with a new - and seemingly promising – interactive relationship*'.

In its briefest form, the paradigm that has governed up to now is that of instruction where a college is an institution that exists *to provide instruction.* Subtly, but profoundly, we are shifting to the new paradigm where a college is an institution that exists *to produce learning* (Barr, 1998). This Learning Paradigm contrasts with how

Williams (2001, p. 89) describes most programmes of basic professional education: '... *remain largely teacher-directed, fact-orientated and lack inclusion of activities designed to facilitate the development of self-directed learning abilities'.*

Much of the research theory and practice of higher education over the last twenty years has been based on the notions of deep and surface learning (Biggs, 1987). A surface approach to learning involves acquiring information for reproduction in an assessment task whereas a deep approach involves meaningful interpretation of newly learned material. The deep approach applies higher order learning processes such as comparing and contrasting, analysing and hypothesising, and reflection. The surface approach concentrates more on describing, listing, or following simple procedures. Deep learning, action learning, and problem-based learning are all based on the attempt to move students from a surface to a deep approach to learning mainly by having students more actively involved in the learning process (Barnett, 1997; Marton and Saljo, 1976).

PBL is congruent with the philosophy of the new Learning Paradigm and is responsive to the notion that learning must necessarily take account of the learner as it is student-centred, develops transferable skills and encourages deep rather than surface learning (Barrows and Tamblyn, 1980). Both PBL and the Learning Paradigm have made an impression on me and I would like to help my institute shift in this direction. By involving colleagues in this research it will facilitate organisational learning by exposing them to the alternative paradigm and to the concepts of PBL. I agree with Schwartz (1997) that *participation* by staff in PBL will be more persuasive than *theoretical* arguments, and if we expect our students to change and respond to the challenges of PBL, then those changes may have to occur *first* in teachers.

1.2.5 Dublin Institute of Technology

Student learning is a central issue in the Dublin Institute of Technology (DIT) and concepts such as modularisation; more flexible delivery mechanisms and student-centred approaches are being promoted. DIT has committed itself firmly to the learning paradigm by the statements and views expressed in their Strategic Plan (2001-2015, p. 9). One of these objectives is to provide a multi-level, learner-centred environment.

> *The objective under this theme is to enhance the standing and effectiveness of the DIT as a multi-level, technological institution, offering programmes to a broadly-based clientele in a learner-centred environment and which includes a focus on responsiveness to society's lifelong learning needs. An underlying theme is the promotion of the capacity to learn and to reason, and of learning skills, as being of greater importance than the changing nature of learning content.*

The institute's aim to encourage lifelong learning requires an emphasis on the process, as well as the content, of material learned. Lifelong learning covers all forms of post-compulsory education. Learning and teaching for lifelong learning shares many characteristics with PBL. It includes active learning, problem-based, competency-based formative assessments and self-directed learning. The '*Learning Paradigm*' will be the model used to implement the DIT's vision of lifelong learning for the future (Kelly, 2002)

DIT's commitment to train staff in problem-based learning is underscored by one of the strategic goals ' *To develop [a] new learning paradigm with a focus on problem based and student group self-learning, with academic staff facilitating these processes*' (DIT Strategic Plan, 2001, p. 9) To this end and to demonstrate its commitment to teaching excellence and enhance learning and student success, which is central to the mission of the DIT, the Learning and Teaching Centre was established in 1999.

1.2.6 Staff Development and Quality in Teaching

With the increasing emphasis on accountability, diversity in the student population and the call for more student centred strategies, teaching and learning have assumed new importance and the quality of teaching is being put under the microscope. As recently as

October 2002, the Irish Independent reported that talks within the Department of Education and Science have begun to ensure that the quality of teaching in higher education is up to the best international standards.

Academics have always felt the need to keep themselves up-to-date in their subject area through scholarship and research. This often stems from the individual's own intrinsic interest in the subject and its development. However, subject knowledge development is now recognised as being only part of the continuing professional development needs of an academic (Fry, Ketteridge and Marshall, 2001) and I concur with Laurillard (1999) that a professional approach to teaching should be taken, in the same light as a professional approach to law, medicine or engineering. These factors and others have focussed attention on teaching skills and on the professionalism of the academic in addition to research and scholarship. This, in turn, places new demands on staff development.

It is important that staff have opportunities to replenish their understanding of the process of teaching and learning, and to practise the skills of educational design and evaluation that will make them what Schon (1987) refers to as, reflective practitioners. I argue that DIT will maintain its high quality of teaching staff, by supporting and developing both teaching and research and by its aim to bring the professional standards associated with the conduct of research with the conduct of teaching.

Employers demands, new curriculum development, new course and programme models, new markets and new technology are all drivers for change and, in order to deal with this, we need to value our teaching. Professional development is necessary for helping teachers to use PBL to improve student learning. For a richer understanding of a new teaching strategy, teachers should receive the same kind of instructional experience in professional development, as their students will experience. Dolmans et al (1994b), see the development of faculty to improve tutor effectiveness as vital to the delivery of good PBL. This is linked to academic and professional development and increased attention to teaching.

1.3 Research Aim

The aim of this study is to examine the experience of the participants on the problem-based learning module of the DIT, Diploma in Third Level Learning and Teaching. The module began in November 2000 and ran for a ten-week period ending in February 2001. This was the first such module run by the DIT Learning and Teaching Centre.

I am interested in finding out what the participants' reaction to the course was, what they had learnt, what they thought of PBL as a teaching method and if they had implemented it subsequently into their work. I also aim to explore to what extent this experience has impacted on their teaching or pedagogical stance. I anticipate an emerging theory in line with taking a qualitative approach. I am not trying to prove that PBL is '*the way to go*' or that the participants are convinced of its benefits, rather, I hope my research will help to illuminate the PBL process as experienced by staff and add to the empirical research. I am using a case study to carry out my investigation. This is outlined in more detail in the methodology section.

1.4 Research Questions

The purpose of my research is to examine and record from a qualitative perspective the experience of staff on the problem-based learning module (PBL), which is part of the DIT Diploma in Third Level Learning and Teaching. The overall aim of this study is to stimulate reflection and discussion about teaching and learning in a PBL student-centred curriculum.

The research has two main objectives:

- **The first is to do a qualitative study from the perspective of the staff of their experience of the PBL module on the DIT Postgraduate Diploma.**

- **The second is to examine how the PBL module has impacted on their pedagogical stance (how they view themselves as teachers and the strategies they use in the classroom).**

In order to develop a greater understanding of what it means to be a student of problem-based learning, I propose to *record* the experience of the participants and their thoughts on the effectiveness of PBL as an instructional method and to determine if and how the experience has changed or influenced their teaching. What if any benefits, can be gained by this method and what is the perceived weakness of this approach? In the course of this I will examine the link between the training in PBL with the implementation of it, if any, by the participants in their work and determine the barriers and supports in its implementation. By focusing on the practical experience of the participants I hope to gain an insight into how the process has impacted on them and how it relates to their pedagogical stance.

The questions that will drive my research forward are:

- **As a student of problem-based learning what has the experience been like?**
- **How has the experience of the problem-based learning module impacted on your pedagogical stance?**

Staff on the DIT, PBL module became students of PBL for a ten- week period and experienced what PBL was like from the perspective of being a student. All of the participants were lecturers in DIT. This enabled them to experience at first hand the challenges and emotions their own students might experience. It was also an opportunity to see the applicability of PBL for themselves as teachers and to consider if it would be an appropriate approach in their own teaching. I maintain staff would be in a position to judge if and how PBL works, and if they would be disposed towards it both from the perspectives of learning and teaching. This I suggest would have bearings an their pedagogical stance. This study hopes to capture the essence of PBL as experienced by these staff members.

Many PBL studies that have been conducted have been in the area of the health care or medical disciplines (Barrows and Tamblyn, 1980; Murray and Savin-Badin, 2000). I am examining the experiences of lecturers from other disciplines such as Applied Arts and Engineering, within my institute (DIT) and in an Irish context. I think it is important for

each country to engage in research on PBL as the political and educational context is unique for each one and has its influence on the development of PBL.

To improve teaching one needs to know about it and to know about it we need to research it. It is through research that we can find ways to build and progress that knowledge. The contribution that this research hopes to make is to act as a stimulus to raising awareness and reflection about PBL and to add to the empirical research.

1.5 Operational Terms

The key terms used in this study are explained below.

Staff perspective

Many studies of PBL have been conducted from the perspective or view of the student. Other studies focus on the perspective of staff, in their role as tutors in PBL. This study looks at the experience of staff in the role of students on a PBL module. As such they are likely to view the PBL experience from a different perspective, as apart from assessing the benefits/disadvantages and applicability of PBL, staff will also be concerned with additional issues of implementing PBL, writing problems, designing curricula, tutoring and assessment.

Throughout the research I refer to the staff members who took part in the PBL module and, in this study as the *participants*.

Problem-Based Learning (PBL)

There are many interpretations of PBL. Some define it as problem solving; others see it as a problem that is tacked on at the end of a teaching sequence. Others see it as a case study exercise, group work or team exercise. I am adopting Barrow and Tambyln's (1980, p. 1) definition:

> *The learning, which results from the process of working towards the understanding of, or resolution of, a problem. The problem is encountered first in the learning process*

In this form of PBL, the learning is active, problem-centred, student-centred, collaborative, integrated, interdisciplinary, and utilises small groups in a specific tutorial process.

Impact

The Oxford English Dictionary defines impact as an effect or influence. How do we know something has had an effect or influence on something? If participants implemented PBL in their work as a result of doing this module, this would imply it had made an impact on them. Impact for the purpose of this study means more than implementation however, as it may not have always been possible for participants to introduce PBL into their work. A broader definition of impact then, would be to view it as how it affected their understanding of the teacher/student role in the learning process. The experiences and interactions provided by the module are the focus of interest for this study.

Pedagogical Stance

My operational definition of 'pedagogic stance' for this research is based on Murray and Savin-Badin's (2000, p.117) definition; '*The concept of pedagogical stance encapsulates the way in which staff in higher education see themselves as teachers*'. For clarity, I further refine this as the way teachers conceive of their role in teaching and as evidenced by the methodologies they use in the classroom

1.6 Focus of the Study

Dublin Institute of Technology established a Learning and Teaching Centre (LTC) in 1999. An important part of their role is to provide courses and workshops that help to promote better understanding of teaching and learning both for new and existing staff. One of its objectives is to assist in the development and delivery of accredited teaching qualifications for interested staff. To this end the LTC developed the first Postgraduate Programme in third level Learning and Teaching in the Republic of Ireland.

The Postgraduate Programme consists of three part-time modularised courses: the Certificate, Diploma, and Masters (M.A). The Certificate course is based on experiential learning, the Diploma uses a problem-based learning framework and the Masters is research-based learning. It is the PBL module on the Diploma course that is the focus of this study.

The study is confined to the first ever-completed PBL module of the Postgraduate Diploma in Third Level Learning and Teaching, in Ireland. I decided to base the study on the PBL module as the other modules such as On-line learning; Key skills and Research Methods would not have the same value or yield the information I am looking for.

More importantly the first PBL group of six students have had a longer time-frame within which, to assess and examine what the impact has been on themselves and their work, as they began the ten week module in November 2000. This was a pilot for the subsequent PBL modules that began in September 2001. Out of the six participants in this group four went on to complete the other two modules leading to the Diploma in May 2002.

The Diploma consists of three modules. Although PBL is the total framework, model of curriculum design, and tutorial process for the Postgraduate Diploma the first module is specifically designed to introduce participants to PBL and to empower them to design, deliver, assess and evaluate problem-based learning curricula. It is this module, which provides the focus of the study. (See Appendix A for module descriptor and promotional material).

The PBL module was a ten- week module. It began with seven participants but one dropped out in the early stages due to illness. The remaining six participants worked on two group problems and one individual assignment over the course of the module. Participants met once a week for a three- hour period, where they used a combination of working through the PBL tutorial process (explained in chapter 2 section 2.2), pursued independent study, had access to fixed resources (tutor, library, computers) and discussions with guest lecturers. On completion of the two group problems, participants

were required to make presentations to an invited audience. Each problem resolution was followed by group and peer assessment sessions.

I intend to focus on what actually happens in the PBL tutorial process, specifically the interaction between students, students and facilitator and how the students felt about working as a group and taking on different roles, such as chairman, scribe, reader. What part did independent study play and how did it integrate with the group objectives? Did they feel they were learning and how did they demonstrate this? How did they feel about writing reports and making presentations? What did they think about the support and direction they were given? In essence what was the experience like?

The study is not primarily concerned with *if* participants implemented PBL but rather *how* the process of undergoing the module affected them and their thinking about PBL as an instructional method. Patton (1990) maintains that what we do is less important than how we do it, and that as much attention should be given to how members and participants feel about what is happening, as to the results achieved. Implementation issues will be addressed in so far as they may have impacted on participant's pedagogical stance.

I am using a case study based on a small group of people and I am in search of an emerging theory. Consequently my emphasis will be on illumination, understanding and extrapolation rather than causal determination, prediction, and generalization, which would be characteristic of quantitative analysis. I intend to use a qualitative approach and my research questions will inform my methodology. Patton (1990, p. 95) supports the use of a qualitative inquiry in studying a process because '*depicting process requires detailed description; the experience of process typically varies for different people; process is fluid and dynamic; participants perceptions are a key process consideration*'.

1.7 Summary

Educational dialogue and reflectivity in teachers are necessary ingredients for the development and improvement of education practice. The introduction of PBL or any new educational approach may be the stimulus that is required. Changing third level educational practices from relying on traditional didactic lectures to teaching practices that motivate and incorporate self-directed learning requires time, effort, dedication, resources and professional training for educators.

The changing nature of the modern workplace, the emergence of the Learning Paradigm and the DIT mission statement are the three interconnected themes that provide the backdrop to my study. My experience on the DIT Postgraduate Diploma in Third Level Learning and Teaching, and interest in PBL, provide the rationale from which the study emerged.

Chapter two proceeds with a detailed description of what PBL is and considers the literature relevant to this study.

Chapter Two

Literature Review

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

Merthens (1998, p. 34) believes that the purpose of a literature review in a research study is to '*provide the reader with an overall framework for where the piece of work fits in the 'big picture' of what is known about a topic from previous research*'

In this chapter I have synthesised the background to the various books, articles and journals I have examined as they relate specifically to my research topic: Staff Perspectives on the Experience of a Problem-Based Learning Staff Development Module: Impact on their Pedagogical Stance. In the first section PBL is described and placed in context as is the tutorial process and how it functions. I then outline some of the main contributions in the general area of PBL with a focus on how they pertain to my study; learner's perspectives of PBL, staff perspectives of PBL, staff development programmes, and conceptions of teaching.

2.2 What is Problem-Based Learning?

> '*Tell me and I'll forget. Show me and I may not remember. Involve me and I'll understand.*' (Native American saying)

Problem-based learning has much in common with the latter part of this Native American saying, as it is an instructional strategy that promotes active learning. It is compatible with educational psychologists and curriculum theorists (Gibbs, 1995; Rogers, 1969; Dewey, 1938) who have long proposed; that learning occurs best when the learner discovers the needed information by their own means, in an environment that closely resembles that in which the student will utilise the knowledge. Barrows and Kelson (1999, p. 2) describe it as '*...an ordered instructional approach that models the process by which experts systematically work through real-life problems*' PBL can be used as a framework for modules, courses, programmes, or curricula.

Problem- based learning emerged in the 1960s at McMaster University Medical School-Canada. The Project for Learning Resources Design, headed by Howard Barrows, M. D., was established to develop problems that would challenge problem-solving skills. This soon led to other areas of research such as the development of a series of problem simulations, more effective ways to structure PBL, and development of the facilitator's role in learning. The tutorial process was introduced not only as a specific instructional method (Barrows and Tamblyn, 1980) but also as central to their philosophy for structuring an entire curriculum promoting student-centred multidisciplinary education as a basis for lifelong learning in professional practice.

PBL emerged in response to dissatisfaction with the teaching and learning methods in use at the time at McMaster University Medical School-Canada. It subsequently spread to Masstricht-Netherlands, Newcastle- Australia and New Mexico-USA. It was recognized as an innovative way of shifting the balance of power from the lecturer to the student, and of developing both problem-solving skills and transferable skills in addition to acquiring specialist medical knowledge. The notion of learning through solving or managing problems is not new, but the way in which Barrows developed it saw PBL emerge as a specific concept and approach.

It gained popularity as a new learning method through its use in medical schools. Since that time, universities representing a number of countries, including Denmark, England, France, Finland, South Africa, and Sweden are currently using PBL in medical and professional schools. A wide range of professional curricula, e.g. Law, engineering, police and emergency services, architecture, nursing, education, occupational therapy and medical radiation, have adopted it in recent years.

PBL has been adopted by various institutions in Ireland in the last few years. UCD have completed a pilot PBL study in its Veterinary School, and Trinity has introduced it into all years of their Dentistry Course. DIT has a successful PBL course in physics, with many other initiatives starting up in various disciplines.

2.2.1 Characteristics of PBL

There are many variations and models of PBL (Barrows, 1986) that give rise to confusion and even dispute as to the veracity of some PBL practitioners who claim to be doing PBL. It would seem that many lecturers who use problem-solving techniques in their teaching deem this to be PBL but this is a misconception. According to Walton and Matthews (1989) PBL should be distinguished by three components. These consist of essential characteristics, conditions that facilitate PBL, and outcomes which are facilitated by PBL.

As a teaching and learning methodology I view PBL as incorporating the following:

- Learning is student centred.
- Learning occurs in small student groups.
- Teachers are facilitators or guides.
- Problems form the organizing focus and stimulus for learning.
- Problems are a vehicle for the development of problem-solving skills.
- New information is acquired through self-directed learning.
- Assessment extends to both the process of learning and the content.

Although sharing these characteristics with many other forms of learning, it is the way in which they are applied within problem-based learning, which makes it unique. PBL is not simply the addition of problem-solving activities into otherwise conventional curricula.

PBL is student- centred and works through the group process. Eight members or less are ideal, as the small group cannot function well beyond eight members (Barrows, 1988). Students take ownership of their studies and work in a co-operative manner as opposed to a competitive one. The tutor/facilitator role is one of guiding and providing support. The range of activities and skills involved in finding a resolution to the problem include researching, collaborating, critical thinking, application of previous knowledge, writing, debating (argumentation skills), presenting, time-management, group dynamics, self-directed learning skills.

2.2.2 The PBL Tutorial Process

Students are divided into small groups. This is a key element of PBL as the benefit of the group environment comes from the multiple perspectives, different learning styles, prior knowledge, and the combined efforts of the group members. The group sets the ground rules for the efficient operation of the group itself and elects a chairperson, a scribe, and a reader for each session or set of sessions.

The problem is always the starting point in PBL. Students are presented with a problem or problem scenario before any other teaching or learning sessions. This according to Albanese and Mitchell (1993) is one of the essential distinctions between problem-based learning and other problem–oriented methods. Confronted with an 'ill-structured' authentic problem the problems act as a stimulus and focus for student activities. With the guidance of a facilitator they work through the following process:

- Students generate ideas/hypotheses about the problem based on the information presented and their own past experience and knowledge.
- Information and facts are listed.
- The learning issues are identified.
- An action plan is formulated.

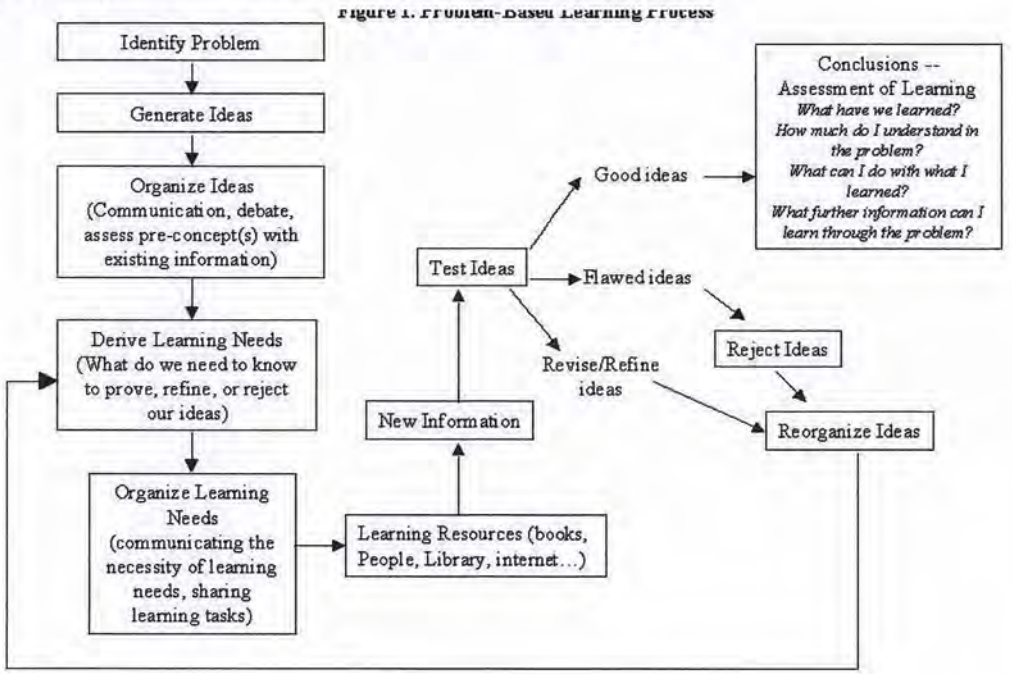
The scribe records the information on a board under four categories, developed by Barrows (1988). Figure 2 illustrates this.

Figure 2. PBL Whiteboard

Hypotheses/Ideas	Facts	Learning Issues	Action Plan

The learning issues determine the action plan and are used as a guide for further individualized study. The skills and knowledge acquired during this process are applied back to the problem scenario, and the learning that has occurred in working directly with the scenario in-group discussion and in individualized study is summarized and integrated into the students' existing knowledge and skills. Figure 3 summarises this process.

Figure 3 Problem - based learning process



Original appeared in Wang, Thompson, Shuler, & Harvey (1999). Problem-Based Learning for Science Teacher's Professional Development. Paper Presented at the 1999 AETS Annual Conference, Austin, Texas

University of Southern California Science Project/Problem-Based Learning Process
Source: www.usc.edu/hsc/dental/ccmb/usc-csp/PBLprocessflo.JPG

Within PBL, there is ongoing assessment and it is extended to include both the process of learning as well as the content of learning. This may include peer, self and tutor assessment.

2.2.3 Psychology of PBL

A summary overview of the psychology of PBL is introduced at this point as the literature I draw on in relation to my research topic; staff perspectives, staff development module, and pedagogical stance is viewed from the point of view of the psychology of PBL as a psychological construct.

According to Gijselaers (1996, p. 13) '*problem-based learning derives from the theory that learning is a process in which the learner actively constructs knowledge*'. This is a basic premise of cognitive psychology and provides the theoretical basis for problem-based learning. Prior to the constructivist theory of learning, where learning is a process of constructing new knowledge on the bases of current knowledge, learning was seen as a receptive process (Bruer, 1993). For this reason Bereiter and Scardamalia (1992) suggest that lecturing is only of limited use and that instruction plays a role only to the extent that it enables and fosters constructive activities

In modern cognitive psychology, activating existing knowledge to facilitate processing of new information is regarded as a basic requirement of learning. Another principle is knowing about knowing or as Bruer (1993) calls it, metacognition. This is the ability to monitor one's own learning behaviour and being aware of how one is learning. Social and contextual factors also influence learning and for this reason instruction should be placed in the context of complex and meaningful problem-solving situations. Gijselaers (1996) suggests students should be taught from different perspectives and collaborative learning situations should confront students with beliefs held by other students. Problem-based learning incorporates all of these principles.

The first step of the PBL tutorial process is the presentation of a problem to the students as the learning that occurs in problem-based learning stems from the engagement with a problem and the seeking of a resolution. According to Barrows (1980) it is through this engagement that problem- solving skills are fostered. It is suggested that the knowledge gained in the context of solving real life problems encourages the student to retrieve the relevant knowledge to apply to other similar situations. PBL also motivates students to learn through the type of problems encountered. Stepian and Pyke (1997) maintain that

problems need to be relevant and complex rather than one-answer only type problems and ideally include an element of surprise or an ethical dilemma. According to Hunt (1971) it is the desire to fill these knowledge gaps that promotes learning.

The second step in the tutorial process is for students to analyse and discuss the problem. Small group discussion of a problem is one of the methods to activate relevant prior knowledge. PBL provides an appropriate context for learning as cognitive psychology maintains that activation of prior knowledge facilitates the subsequent processing of new information (Bransford and Johnson, 1972). This also enhances subsequent retrieval of knowledge as it encourages elaboration at the time of learning. According to Godden and Baddeley (1975) the retrieval of knowledge is contingent on the context at the time of learning. When the students have decided on an action plan as a result of their discussion, they spend some independent study time following up the issues. Self-directed learning skills are fostered by the formulation of learning needs and efficient strategies to resolve them along with the proper use of resources (Barrows, 1980). The PBL process is completed when the students report in a subsequent session about what they have learned.

Norman and Schmidt (1992) in their review of the evidence for the psychological basis of problem-based learning, support much of the theoretical basis for PBL. Whereas they found that PBL students may in the short term do less well than their traditional counterparts, studies show that long term their knowledge retention is better. PBL has a large and potentially long-lasting impact on self-directed learning skills and PBL is a motivating way to learn for students.

2.2.4 Role of the Teacher in PBL

Problem-based learning causes a shift in roles both for teachers and students. Essentially the teacher has to forego the traditional role of knowledge dispenser and instead acts as a facilitator in the learning process. The facilitator monitors the students learning and provides essential feedback as required. The facilitator's main role is at the metacognitive level (Barrows, 1988) that is they make students aware of their thinking and approach to the problems. The traditional role of the teacher as knowledge-holder and disseminator is

transformed as the learning is centred on the problem and the students assume the role of active problem-solvers, decision makers, and meaning-makers rather than passive listeners. Figure 4 outlines this role change.

Figure 4. Teacher Role, Student Role

Teacher as coach	Student as active problem-solver	Problem as initial challenge and motivation
Models/coaches/fades in: • Asking about thinking • Monitoring learning • Probing/ challenging students' thinking • Keeping students involved • Monitoring/ adjusting levels of challenge • Managing group dynamics • Keeping process moving	Student as active problem-solver: • Active participant • Engaged • Constructing meaning	Problem as initial challenge and motivation to attention: • Ill-structured • Appeals to human desire for resolution/ stasis/harmony • Sets up need for and context of learning which follows

Illinois Mathematics and Science Academy (2001)
Source: http://www.imsa.edu/team/cpbl/intro/whatis/slide7.html

2.3 PBL Literature

From my initial literature review it became clear that the wealth of information on PBL could not alone prove overwhelming, but is an indication of the interest and importance of the work done in this area. Since its beginning in the mid 1960s at McMaster Medical School, much has been written about PBL. Savin-Baden and White (2002) provide a web site with a basic overview of studies that have been done in the field of problem-

based learning in the last twenty years. It is not within the scope of this study to give detailed analysis of these various studies as this has been done elsewhere, rather I will concentrate on those which relate to this study.

There have been several studies on PBL from the perspective of the student experience. Albanese and Mithchell (1993) used a meta-analysis-type review of the literature on PBL from 1972 to 1992 to examine the effects of PBL. They found that compared to conventional instruction, PBL was considered to be more nurturing and enjoyable and PBL students performed better in some areas. However, they did less well in the basic sciences and also appeared to have gaps in their cognitive knowledge base. They concluded that caution should be exercised in making comprehensive, curriculum-wide conversions to PBL until more is learned about PBL.

Taylor and Burgess (1995) study using an illuminative evaluation approach into student experiences concludes that measures should be put in place in advance of implementing PBL in order to increase it's effectiveness, such as introducing students to group learning, time management and expectations of self-directed learning. Woods (1994) also came to the same conclusion and maintains that any gains from PBL are dependent on addressing the skills associated with problem-solving, self-directed learning and group work, and has designed measures to help prepare students in these areas.

These have been informative studies as regards implementation issues and assessing the success of PBL compared to the traditional curriculum but this emphasis on comparison with the traditional curriculum to justify the success of PBL does not I maintain, give a sense of what the *experience* of the students was actually like.

Comparative studies (Woodward and Ferrier, 1982; O'Hanlan *et al* 1995) suggest that students favour PBL over traditional methods. It is a motivating way to learn, as learners are involved in active learning, and working with real problems. A recent report in the educational supplement of the Irish Times (April 23rd 2002) supports this view. It outlined the progress of a first year physics course in DIT using PBL. Based on observing and interviewing the students the students were described as being '*wildly enthusiastic, saying they wish all of their subjects were taught this way*'.

Savin-Baden (2000) says little is known about what actually occurs, inside problem-based curricula in terms of staffs' and students' lived experience of the curriculum. Their voices are largely missing form the literature on PBL. Current PBL literature centres predominantly upon descriptions of PBL: how it is implemented and how it is being used. Savin-Baden (1998, p. 1) suggests that '*the consideration of personal experience in learning is something that is noticeably lacking in the literature about learning in general, and problem-based learning in particular*'. She questions if we need to justify PBL in relation to traditional curriculum by using comparative studies. She suggests we should argue for PBL on its own merits and calls for narratives, case studies, and studies that confront or confirm recent work, to have less measuring and to ensure our data analysis is theoretically informed Savin-Baden (DIT, 2002)

Mierson and Parikh (2000) attempt to address this criticism as they provide a practical account of PBL sessions from a teacher and a student's perspective, but though practical and informative it lacked academic rigour. There was no methodology or analysis provided but it came across as an interesting narrative. I do think this is going in the right direction however, as it gives an insight into the PBL world as experienced by staff and students. My study hopes to build on this with the methodological rigour that will provide credibility to the study.

The argument for more research based on qualitative studies is also supported by Von Schilling (1995), who maintains that the scientific method and positivistic thinking cannot capture some of the essence embedded in PBL. This '*capturing of the essence of PBL*' is at the heart of what I am trying to do and by using a qualitative approach I hope to draw out the lived experience of the participants.

2.3.1 Staff Perspectives and Staff Training Programmes

Neame (1982) in an early study on staff experience of PBL approaches PBL from the point of view of their satisfaction with PBL and identified three areas which contributed to this. He concluded that staff satisfaction depended on a commitment to the philosophy of PBL, satisfaction with the implementation of it, and interdisciplinary collaboration. What is interesting is that he noted that staff who were involved in the

PBL curriculum programme for a greater period of time were more committed to PBL than those who had been involved for a shorter time. I would surmise that staff involved in the PBL Postgraduate Diploma Module would also have more experience and commitment compared to those being trained through one-day workshops. I suggest that the longer period of time spent together and the commitment to resolving the problems through the tutorial process fosters a communal purpose and richness of discussion that may not occur on a shorter course.

The work of Woods (1997), Little (1997), and Schwarz (1997) address problems with implementation of PBL. Many studies I have come across have identified staff training as a key issue in successful implementation of PBL. Some suggest that staff should put themselves in the position as students on a PBL course so as to be better able to appreciate what the experience is like, and to experience it as would their students (Murray and Savin-Badin, 2000; Schwartz, Mennin and Webb, 2001; Wilkie, 2002).

Most literature that is currently available in relation to staff development programmes in PBL generally only documents accounts of them, for example Del Mar (1997) (cited in Murray and Savin-Baden, 2000, p.108) and Little (1997). The tutorial process as a specific instructional method is described by Barrows and Tamblyn (1980), and it is this aspect of PBL which seems to be the focus for the training of staff. Training faculty for PBL is often taken to mean training them to be tutors. I would suggest that this emphasis is somewhat limiting as there is much more involved. Apart from facing challenges from their colleagues and having to contend with institutional and organisational issues, staff will have to cope with a role transition both for themselves and their students and this prompts a questioning of one's pedagogical stance. What are the pedagogical assumptions behind PBL and is it suitable for everyone?

Bernstein et al (1995) examine this aspect when they considered the relationship of how PBL affects staff in changing from their traditional role of the didactic teacher to the role of facilitator in the tutorial process. They evaluated shifts in students' attitudes after experiencing PBL as well as faculty experiences. A quantitative method was used with questionnaires administered to students and staff, before and after a five week PBL

period. The data was analysed using quantitative methods and the conclusions were that direct experience with PBL led to more favourable attitudes among students and staff. I would be investigating whether I get similar information albeit in a different way and from a qualitative perspective.

There seems to be a dearth of research related to staff training in PBL and this is acknowledged by Murray and Savin-Baden (2000, p.108) '*there have been few studies that have examined the processes, and outcomes of staff development and progress, or evaluated either the success of staff training or, indeed, staff's perspectives of such training*'.

This is despite the fact that many researchers acknowledge that staff development is now perceived to be key to the success of PBL (Hitchcock, Mylona and Zoi-Helen, 2000; Nayer1995). In a paper by Gijselaers (1996) that discusses the educational theory behind PBL, he recognises the importance and the difficulty of the tutor role and suggests tutor development programmes be set up as a way to address this. Furthermore Bridges and Hallinger (1996, p. 56) note that the success of a PBL environment is dependent upon both faculty attitudes *'and faculty actions prior to, during and following a PBL project*'

Woods (1997) in his study of the obstacles confronting teachers in implementing PBL makes some observations about the organisational and institutional barriers, amongst which would be lack of adequate preparation for staff. He emphasises the need to prepare students and that they should be trained in the skills necessary for participating fully in the tutorial process, (chairing skills, awareness of group dynamics) before they actually do PBL. I would suggest that staff ought to be trained also in this respect.

Wilkerson and Hundert (1997) mention faculty development as necessary for effective implementation of PBL as in their experience staff had no specific training and it seemed to be that it was staff interest and enthusiasm that kept the project alive. They concluded that academic support, flexibility in scheduling, and availability of money for instructional resources, course-specific workshops, institutional conferences and student evaluation were necessary supports.

Shona Little (1997) in asking the question pertinent to my own study, namely, how can tertiary teachers be helped to acquire the skills needed for effective implementation of PBL, describes an optional training module provided for teachers at third level. She alludes to the difficulties associated with the change in the role of the teacher in adopting PBL. Behaviour and beliefs will be challenged and reactions of colleagues and possible lack of support, to downright hostility or patronizing behaviour may be encountered. My study would aspire to finding out if this was the case for participants of this module?

Von Schilling (1995) in asking the question does PBL work refers to cost effectiveness, resources, selection and format of problems and successful functioning of the group as elements that are essential for effective implementation. In referring to her own experience she identifies staff development as a necessary element for success in PBL but seems to see training of staff to be training in the skills of tutoring. She discusses the '*expert versus non expert controversy*' where some argue that to be an effective PBL tutor one has to be a subject specialist also. The counter argument is that it is not necessary to be a subject specialist and that being unfamiliar with the subject matter may indeed be an advantage as the tutor then gives more consideration to the PBL tutoring skills.

I agree that training staff in the skills of tutoring is important but it is equally important for staff to have a conceptual understanding of PBL, as quite often they attempt to introduce PBL without really understanding the process and they rely on learning by experience. A lot of early work was done like this on a trial and error basis. Experience is a great teacher, but if teachers are properly trained and have a good orientation to PBL then the approach will be better able to realise its potential. This seems to have been taken on board by most institutions implementing PBL since the late 1990s, as they tend to have specific training courses for their staff.

Von Schilling (1995, p. 5) alludes to the impact of the role change on the teacher as tutor when she says '*teachers as tutors, grapple with a major role change and experience traumatic role ambiguity*' I suggest that if teachers are put in the role of the

student through doing a PBL module themselves, they will be better able to deal with this change and have a deeper understanding of both student and teacher roles. Schmidt and Moust (1995) also touch on this theme when they talk about social congruence as being a necessary ingredient for successful tutoring, in addition to tutors being subject matter experts. Drawing on Moust's previous research they maintain, that if tutors can express themselves in the language of the students combined with being a subject specialist then this will lead to greater effectiveness in the tutor role. I would contend that if staff experience a PBL training course (one where they learn about PBL by being PBL students) they would be better able to understand student's problems in experiencing PBL.

Murray and Savin-Baden's (2000) study of staff development in problem-based learning in the context of a Nursing and Midwifery curricula at the University of Dundee, represents a good example of the attempt to unravel the relationship between staff training and its impact on staff. They have highlighted the benefits of staff development. Though there are similarities with the module I propose to examine, the training they provided was shorter and they used a two-phase approach in the form of circulation of information before the training, and opportunity for debate and workshops at a later stage.

My exploration of PBL starts with the assumption that not all those who took part in the DIT PBL module were intending to implement PBL, as it is part of a wider staff development programme, leading to a Postgraduate Diploma. Nor can I assume that they were convinced of the benefits or applicability of PBL, whereas the Murray and Savin-Baden study correctly presumes that the staff engaged in the PBL training had definite intensions of implementing it and the staff development action plan that was developed '*focused on ...the orientation to PBL and the preparation of facilitators*' Murray and Savin-Baden (2000, p. 112). In the evaluation of the program, the main purpose was '*to inform subsequent staff development activities*'. (2000, p. 114) My main aim is to record the experience of the participants, so it is very much process orientated; I want to capture the sense of the experience. Inevitably, this will include

some form of formative evaluation and may be helpful in informing the programme providers but it remains a secondary issue for me.

Murray and Savin-Baden (2000, p. 117) found evidence suggesting that there is an impact on not just implementation of PBL but on how teachers view their teaching and as participants reported '*there were changes in their pedagogical stance and that participants believed they were prepared to become 'more of a facilitator and less of a teacher'*. In a paper by Savin-Baden and Wilkie (2000) similar issues were explored and in conclusion it was found that staff do have difficulties in adapting to the role change from teacher to facilitator and that their personal and pedagogical stance affects this change. The facilitator styles differed as staff went from novice to more experienced facilitators. It was found that there is a need to create '*communicative spaces*' a climate and area for facilitators to share experience and increase understanding of what they are doing and how it affects their personal stance.

Hitchcock, Mylona and Zoi-Helen (2000) examine the transition to PBL and the training required. Training is again implied to be as training for the tutors. They came up with four conclusions about training faculty in PBL. Firstly there are multiple descriptions of faculty training programmes in PBL literature (Wilkerson and Hundert 1991; Todd 1991) but few of the programmes described the effectiveness of their strategies. Hitchcock, Mylona and Zoi-Helen (2000, p. 52) maintain that success hinges on faculty being skilled in PBL. They also say few studies have documented the impact of PBL faculty development strategies. '*If one is looking for an evidence-based approach to training faculty in PBL, it does not currently exist'*.

However, I think one notable exception to this is Murray and Savin-Baden (2000) as described above. Secondly, it is maintained that the transition from lecturer to facilitator is often an uneasy one. This conclusion is in line with many other studies (Adams 1999). Thirdly training for PBL is often taken to mean training to be tutors (which is my contention) but there are more skills involved in implementing PBL than simply training to be a tutor. Finally there is an implied sequence to training someone to implement PBL.

Hitchcock, Mylona and Zoi-Helen (2000) maintain there is a need to challenge assumptions and develop understanding of PBL. They outline a four-step approach to this. Staff should be given an introductory workshop, experience a tutorial, be provided with a workshop to acquire tutor skills and finally a support group of staff should be available to deal with content specific issues.

Another study by Dahlgren, Castensson and Dahlgren (1998) which looks at PBL from the teachers' perspective is useful because through analysis of the teachers' descriptions of their planning and realisation of the PBL course, it became obvious different teachers had different conceptions of PBL making tutoring more difficult.

They conclude along with Murray and MacDonald (1997) that a more coherent and consistent staff policy would help staff to develop and operationalise their conceptions. They call for teachers' personal experience as students in PBL as an effective method for the enhancement of the tutor's role in PBL. Schwartz, Mennin and Webb (2001) have done some interesting case studies, which describe the experience of teachers of coping with some of the major issues arising during implementation of PBL. They advocate live demonstrations of PBL rather than workshops and seminars as a means of really experiencing what PBL is about. I think this is an eminently sensible approach.

Related to conceptions of teaching and more specifically to that held by facilitators using PBL, Wilkie (2002) examines the espoused and actual conceptions of facilitation adopted by nurse teachers on an undergraduate-nursing programme that utilised problem-based learning. She identified four distinct approaches to facilitation, the directive conventionalist approach, the liberating supporter approach, the nurturing socialiser approach, and the pragmatic enabler approach. She recommends that institutions thinking of implementing PBL should provide staff development prior to the start of the programme and continue with support throughout. She maintains that becoming a PBL facilitator means exploring stances as they relate to PBL in addition to learning specific learning and teaching skills.

Burgess and Taylor (2000) in considering faculty roles in PBL take an interesting metaphor of mountain walking to describe the role of the facilitator. In the traditional

model of teaching it is the teacher who decides the destination, devises the plan and leads the group to the top of the mountain. In the PBL process, the teacher's role is one of learning co-coordinator who supports the group rather than directs it

In preparing for the role of the facilitator in PBL Burgess and Taylor (pp.11-12) describe a range of approaches to faculty training that were taken at Bristol University. These include workshops, peer observation and the provision of a facilitators' pack and videos. Like other studies the importance of training and preparation of faculty is yet again emphasized:

> *the transformation in conceiving of the faculty members' role from teacher to learning coordinator is clearly needed for PBL to work well'* and *' we assert that another essential component for PBL is appropriate recruitment, deployment, training and development of faculty'*

It is evident from the literature reviewed that adequate staff training is an essential component for successful implementation of PBL. PBL requires both student and teacher to see themselves in different roles to the traditional teacher/student relationship and as such a more fundamental and complex issue arises, as staff are required to confront their pedagogical ideas about students, teaching and learning.

2.4 Pedagogical Stance

The above discussion has also shown that PBL require a change in the teachers' role. This in turn may require changes in conceptions of teaching. This then begs the question 'what are the conceptions of teaching'? Does one's conception of teaching predispose or hinder one from using PBL? And is it only for teachers with student-focused concepts of teaching? How teachers see themselves as teachers and the strategies they use in their teaching has obvious implications for the learning of their students. I call these conceptions their pedagogical stance. The following section outlines some of the research into conceptions of teaching.

2.4.1 What is Teaching?

'*The aim of teaching is simple: it is to make student learning possible*' (Ramsden 1992, p. 5)

But is it really that simple? In order to make student learning possible one must examine what learning is, and by implication what teaching is. What informs our views of teaching and learning? A detailed discussion of teaching and learning is beyond the scope of this chapter. However, in so far as I am concerned with the impact that PBL may have had on teaching conceptions and the relationship with PBL, and as PBL requires a change in the traditional teacher/student roles and ultimately on teacher's pedagogical stance, it is relevant to refer to some of the research,

The educational psychologist J.M. Stephens (cited in Biehler and Snowman, 1986, p.17) makes a distinction between teacher-theorist and teacher-practitioner. The former is knowledge of teaching based on scientific knowledge including psychology, behavioural theories and cognitive development and the latter is based on classroom practices and experience. Some theorists stress basic assumptions about students, teachers, and the learning situation (Piaget, 1950). Others describe attitudes of students and teachers or highlight the significance of interpersonal relationships (Rogers, 1969). Still others advocate the use of specific instructional techniques (Chickering and Gamson, 1987)

Approaches to teaching and learning are determined by various factors such as the nature of the subject knowledge, the underlying ideology about the nature of learning and the perceived role of staff and students, the personal preferences by teachers for particular styles, the learning and teaching experience of staff and the availability of resources. The context of teaching also affects conceptions of teaching. (Fry, Ketteridge and Marshall, 1999)

Teaching is planned and delivered in a number of ways reflecting the different conceptions of teaching and also the varying degrees of adherence to principles of good pedagogy. Ramsden's (1992) six key principles of effective teaching, similar to

Chickering and Gamson's (1987) seven principles code of good practice in undergraduate education are admirable principles and provide good advice and tips on teaching. I would agree that what is also needed, however, is that one should confront ones' own conceptions of teaching and see how one's teaching strategies and methods are matched or not.

One should keep in mind that teachers espoused conceptions of teaching and actual educational practice may be at odds. In a study of current teaching practice and lecturers' perceptions of their role, Murray and MacDonald (1997) found that there was a disjunction between stated aims and their claimed educational practice. Teachers' conceptions of teaching may also be influenced by their students' expectations and conceptions of teaching (Larsson, 1983; Anderson, cited in Dahlgren, Castensson and Dahlgren,1998).

Few teachers are I would contend, explicitly guided by theories of teaching and learning, at tertiary level. Though there is increasing emphasis on the professionalism of teaching, staff are not required to have a teaching qualification. I would question what theory underscores their teaching. Actual practice is usually under-pinned by personal theories, which are seldom made explicit or reflected upon.

2.4.2 Conceptions of Teaching

Recent research has identified a number of '*theories in practice*' held by teachers. These show that there are a limited number of conceptions common among tertiary teachers. A general categorisation of these ranges from teaching as transmission of information to those concerned with the facilitation of understanding in students (Kember, 1997). These two approaches have been distinguished in several studies of faculties' conceptions of teaching in higher education as shown in a comprehensive overview by Murray and MacDonald (1997). Smuelowicz and Bain (1992) also note this distinction making a parallel with quantitative and qualitative learning.

Quantitative theories of teaching characterised by transmission of knowledge, transmission of skills and helping students to acquire knowledge, imply that learning is

additive and that knowledge and skills can be transferred from the *full* mind of the teacher to the *empty* minds of the students. Qualitative theories of teaching characterised by helping students to acquire skills and helping students to change their understanding of the world, assume that students interpret and incorporate '*new material with what they already know, their understanding progressively changing as they learn*'. (Biggs, 1994, pp. 3-4).

To find out about teaching conceptions Trigwell, Prosser & Taylor, (1994) developed the Approaches to Teaching Inventory (ATI). This is composed of 16 items and combines the two features of intention and strategy. It was found that concepts of teaching are related to teaching strategies. Studies by Trigwell, Prosser and Waterhouse, (1999) have also shown a link between the way teachers' conceive of teaching and their approach to teaching. This research showed that those with more learner-based conceptions of teaching use more learner-focussed approaches to teaching and therefore create a higher quality-learning environment for their students.

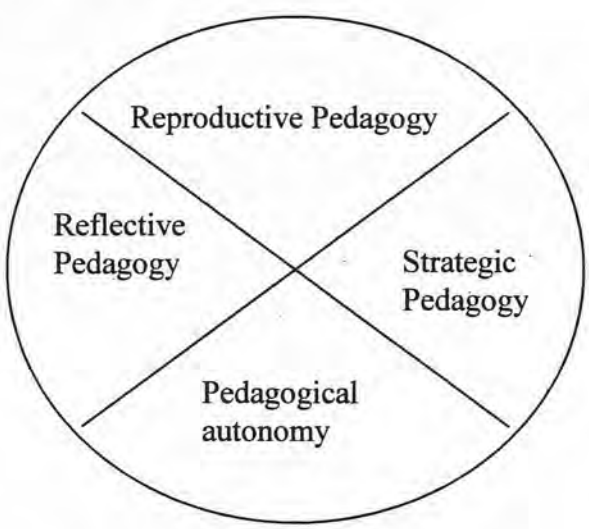
This is very relevant in that PBL requires a conceptual change in the teachers' role and therefore it is logical to speculate that if a change in teaching practice is to occur it may first have to be accompanied by a change in teaching concepts.

Ramsden (1992, pp.111-19) devised a typology of 'Higher education teachers' theories of teaching' based on the work of several researchers. Three generic ways of understanding the role of the teacher in higher education were identified. The first one is the notion of teaching as telling or transmission. This emerged from the behaviourist view that there is a fixed body of knowledge, of which the teacher is both the source of the knowledge and is the knowledge dispenser. The second theory typifies teaching as organising student activity. The third one centres on teaching being an activity which makes learning possible and ties in with the constructivist view which regards the teacher as a guide, with the learner as central to the information or learning process. Key concepts in the constructivist view are- scaffolding, cognitive apprenticeship, and the importance of context and learner control.

This type of framework measures gain in pedagogic expertise by the increase in the awareness of students' needs and the decrease in the amount of obsession with the dissemination of a pre-determined amount of fact and knowledge. This categorisation seems to me to be rather hierarchical and a more attractive representation of conceptions of teaching (as shown in Figure 5) is posited by Murray and Savin-Baden (2000) where teaching conceptions are represented in a circular fashion and are not recognized as being exclusive.

Murray and Savin-Baden classify four different types of conceptions of teaching. They refer to this as pedagogical stance and define it as: '*The concept of pedagogical stance encapsulates the way in which staff in higher education see themselves as teachers*' (2000, p. 117)

Figure 5. Domains of Pedagogical stance



Source: Murray and Savin-Baden (2000)

Reproductive pedagogy describes the traditional lecturer's role as provider of knowledge and the student's role as receiver of knowledge. Strategic pedagogy is used by staff that see their role as offering students different learning strategies and may use Socratic methods to prompt students to seek out cues. Pedagogical autonomy is where staff see themselves as orchestrators of opportunities and provide learning environments

that encourage students to be independent decision makers about what they learn. Reflective pedagogy is where staff sees knowledge as something which should be challenged and explored. Staff help students to see that knowledge is contingent, contextual and constructed, and see themselves and their students as reflective projects.

I had originally thought of this model as a conceptual framework on which to base my questions about teaching as it seemed to provide a more comprehensive reflection of teaching conceptions than those articulated by previous research. It implies a less hierarchical structure than the polarisation of the ' teacher-centred/content-orientated' as opposed to the 'student-centred/learning-orientated' approach by Ramsden (1992) and allows for movement within each quadrant.

However, as I read further in this area I found it to be a bit confusing as Savin- Baden (2000) also uses the term pedagogical stance in relation to students and how they see their learning. I was also aware that this model would need some explanation before teachers could ascertain their particular stance and this would be too complex and time-consuming.

Pedagogical stance as a concept of how teachers see themselves as teachers would I thought be difficult to operationalise, as generally teachers do not articulate their pedagogical stance. In order to get participants to talk about their pedagogical stance I needed an instrument around which I could ask concrete questions. I considered the ATI developed by Trigwell and Prosser as an instument but felt this was inappropriate for my study as pedagogical stance is only one aspect of this study and the instrument was too detailed.

Ramsden's research into conceptions of teaching seemed to be more appropriate as he defined three broad categories and I considered these to be more user-friendly. This study is not concerned with an in depth analysis of conceptions of teaching and other categories might confuse.

2.4.3 PBL and Pedagogical Stance

Conclusions drawn by Schwartz, Mennin and Webb (2001, p. 147) from their work on case studies in PBL have some interesting implications in relation to pedagogical stance.

> *In preparing faculty and students for PBL, it is advisable that teachers be helped to recognize; their own assumptions about effective teaching and learning; the value that underlie those assumptions; the importance of making those values explicit to themselves and to their learners; and that the values of other faculty and of students may well be different from their own.*

A recent study by Kandlbinder and Mauffette (2001) based on Prosser and Trigwell's, (1999) 'Approaches to Teaching Inventory' which examines the conceptions of teaching in relation to PBL has implications for my research in that they examine the conceptions of teaching that are developed as a result of using student-based learning in the sciences. They hypothesised that science teachers using PBL approaches to learning have a range of student-focussed conceptions of teaching and are therefore more likely to use a PBL approach. This was also their conclusion but that PBL as a process of student-centred teaching in the sciences was not the only student centred process.

To understand the influence of theories of knowledge on conceptions of teaching will help explain which concepts are more amenable to PBL. My study differs to the above in that it seeks to see what impact the PBL process has had on teachers' conceptions of teaching even though they may not have necessarily implemented PBL. I am not theory testing but theory seeking. Kandlbinder and Mauffette were trying to prove that teachers who hold learner-centred views of teaching are more likely to adopt strategies such as PBL and they initially used an in-depth interview to screen lecturers who had a more learner-focused approach to their teaching. This is not what I am trying to do but my research may prove to have some similarities with their findings.

Savin-Baden (1998; 2000) advocates that in discussing pedagogical stances, closer attention should be paid to the underlying assumptions of PBL and its pedagogical stance. As has been mentioned earlier, PBL does require a major role change for teachers and also a role change for students and thus it should be recognised that the predominant assumptions about knowledge are also called into question.

Margetson (1991) explores the philosophical difficulties between problem-focused and subject-based learning through a discussion of the nature of epistemology. He argues that the prevalent assumption that '*Knowledge is certain*' still persists and is used to justify didactic teaching. This technicist view of reality he suggests stands in opposition to PBL where the nature of discovery and view of knowledge is quite different. Perhaps it is because of this prevailing concept of knowledge that PBL results in being problematic for those whose pedagogical stance is incongruent with this view of knowledge. Maybe we have to analyse our epistemological conceptions as well as our pedagogical conceptions before we can really appreciate if PBL is suited to us.

Ho, Watkins and Kelly, (2001) contend that, before real change in teaching can take place, a way of changing teachers' conceptions of teaching is needed. How teachers approach and conceptualise their teaching in a given course, that is their beliefs or intentions and the strategies they use in a course, is linked to, and most likely influences what they consider important or meaningful for learning about teaching. The implication of this for the practice of staff development in higher education is that in order for staff to see any value in learning about how students learn, rather than in learning about instructional techniques, their conceptions of teaching need to change. A staff member working from a conception of teaching that is primarily oriented towards the transmission of content and is instructor-focused, will see far less value in learning about how students learn than an instructor who has moved from such a conception of teaching to one that is oriented towards learning and focuses on students

Staff development programmes aim to improve teaching practice and improve student learning. It does seem however, that a lot of these programmes work on the assumption that improving teaching can be achieved with a mastery of a set of generic skills; how to

lecture, how to prepare a lesson plan, how to conduct tutorials. (Biggs, 1999; Ramsden, 1992). Many staff development programmes are run as one-day courses or on a short-term basis and though they no doubt have value, it is questionable how effective they are in actually changing or improving teaching. Research by Gibbs (1995) and Trigwell (1995) suggest that this is not enough, as staff trained in this way often revert to their old practices, modify what they have learned or question the feasibility of new methods learned.

2.5 Summary

This literature review set out to examine the 'big picture' or framework of where this study fits and the review has highlighted a number of factors. The literature on PBL is increasing, but typically its emphasis is on the structure and philosophy of PBL. It became apparent on searching the wealth of literature available that there are many studies on students' experience of PBL, some on teachers' perspectives of PBL, but few, if any, from the perspective of staff whose experience of PBL has come from being both student *and* teacher.

The need to elicit the views of learners in PBL is stressed in the literature, as is the need to provide enhanced models of professional development for teachers to accommodate and implement change. This study attempts to answer the calls for more studies into the lived experience of PBL participants.

I also aim to find out how PBL has impacted on teachers' conceptions of teaching. The literature as described above identifies certain conceptions held by teachers. Teachers who are thinking of using PBL need to ask themselves what is the pedagogical stance of PBL and is my own pedagogical stance sympathetic to this. An emerging question arising from this literature review is that if one has to be predisposed towards student-centred learning in order to be amenable with PBL, how can conceptual change be brought about in staff with incompatible conceptions of teaching and learning?

Chapter Three

Methodology

CHAPTER 3

METHODOLOGY

3.1 Introduction

Denzin and Lincoln (1998, p. 28) state *'A research design describes a flexible set of guidelines that connects theoretical paradigms to strategies of inquiry and methods for collecting empirical material.'*

Research design puts paradigms of interpretation into motion and connects the researcher to methods of collecting and analysing data. There is a range of strategies including case study, phenomenology, ethnography, grounded theory, and action research. These different strategies while sharing certain characteristics have preferred methods of collecting and interpreting data.

Chapter three outlines the research methodology required to meet the objectives of the study. It begins with discussing the constructivist, interpretive perspective of this research. It argues the rationale for the use of an exclusively qualitative paradigm highlighting the importance of both the voice of the researcher and the trustworthiness of the study.

In selecting the methodology I have kept in mind the advice of Bell (1999) that the methodology and methods selected will depend on the nature of the inquiry and on the type of information required. I consider the case study to be the most suitable approach to address the objectives of this study because this research aims to interpret the experience the participants had on a particular module at a specific point of time. The advantages and disadvantages of case study are discussed, as is the rationale for the choice of my particular evaluation modal.

The chapter continues with a consideration of the data collection methods used which in this case was a questionnaire followed by a member check. The analysis and interpretation of the data is explained in relation to the interpretive approach and uses a

thematic analysis (Kirkwood and Kirkwood, 1989; Holliday, 2002; Savin-Baden, 2002). Finally, the ethical issues involved are outlined and addressed.

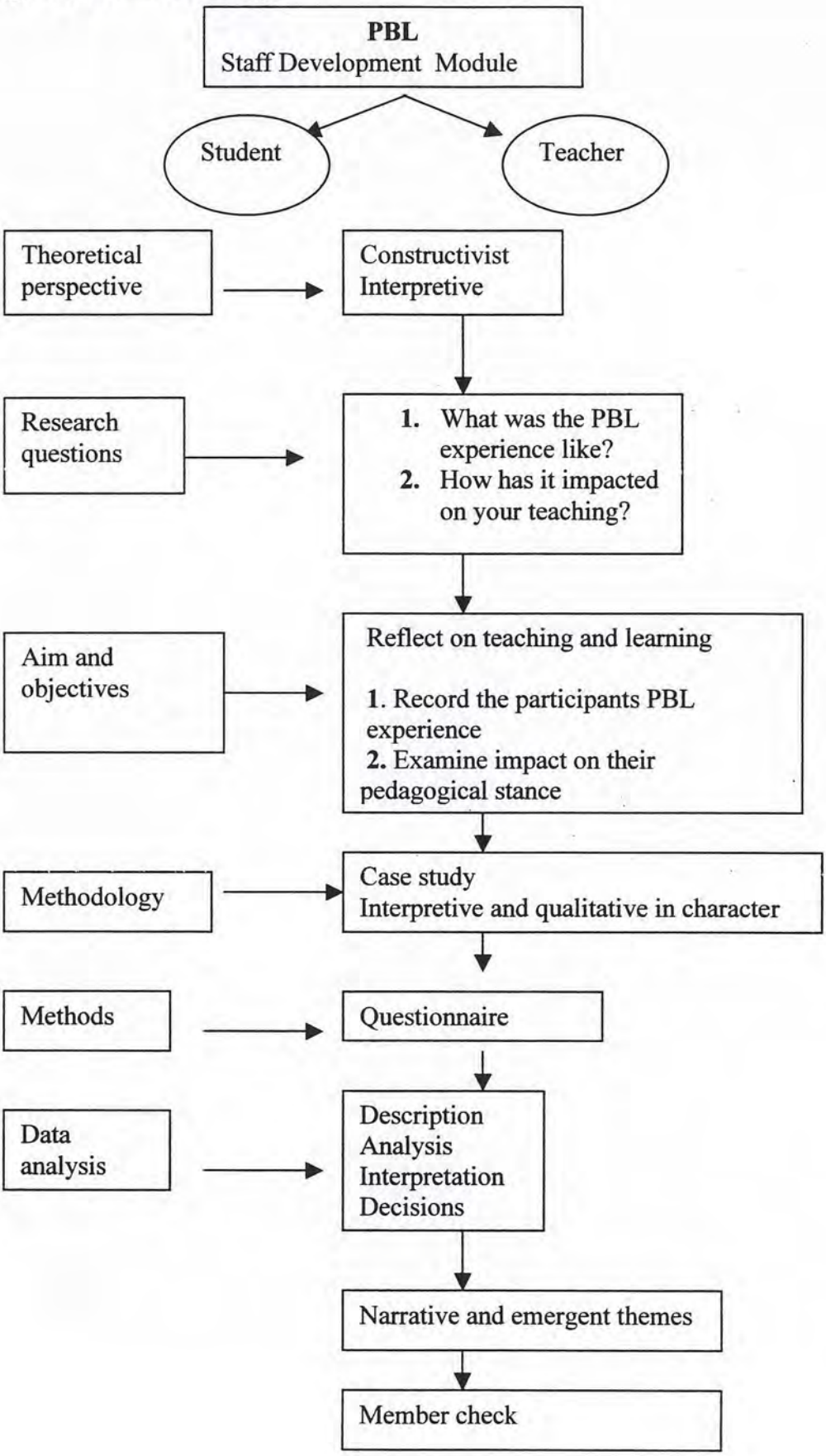
3.2 Constructivist Interpretive Perspective and Qualitative Design

All research according to Crotty (1998) is based on some underlying assumptions and our methods and methodology are based on our assumptions about reality. Our theoretical perspective is informed by our epistemology i.e. how we understand and explain both how we know and what we know. The way in which we view reality (our ontological assumption) and the way in which we consider how knowledge is generated (our epistemological assumption), illustrates how a particular research paradigm guides and informs our research.

Having established an area of interest, namely the DIT problem-based learning module which is part of the Postgraduate Diploma in Third Level Learning and Teaching, I decided to carry out a case study to determine the experience the participants had had on this programme. I was concerned with understanding rather than measuring and endeavoured to get at the heart of the experience, so I adopted a constructivist interpretive approach using a qualitative design. The research questions emerged from the research aims and objectives.

I had thought of using the interview as my research instrument as Denzin and Lincoln (1998, p. 36) state '*The interview is the favourite methodological tool of the qualitative researcher*'. However, I decided to use an in-depth open-ended questionnaire as I considered it to be more appropriate to this study. A considerable amount of time had passed since participants had undertaken the module and I surmised that they would need time to reflect on their experience. Data analysis follows a thematic approach as advocated by Kirkwood and Kirkwood (1989), Holliday (2002) and Savin-Baden (2002). A member check was conducted with the partipants to ensure honesty and trustworthiness of the study. As Holliday (2002, p. 47) maintains that '*qualitative researchers construct the reality of their research through the way in which they show their workings*' I outline in Figure 6 the research design and how it was operationalised.

Figure 6. Research Design



3.2.1 Research Paradigms

A paradigm is a way at looking at the world. *'Paradigms represent a distillation of what we think about the world (but cannot prove)'* Lincoln and Guba (1985, p. 15) The two main paradigms that have emerged are the positivist and the post-positivist. The positivist and post-positivist paradigms are essentially concerned with understanding phenomena through two different lenses. An understanding of the debate associated with these positions will explain the choice of methodology.

Traditional views of scientific enquiry which have been influenced by the Enlightenment, see knowledge as existing independently of the knower and the search for truth is seen as a neutral and rational process in the pursuit of progress and the enhancement of human life. This view of knowledge has been the dominant position from which researchers have conducted their research and has given rise to the positivist paradigm. Alternative views of knowledge claims have led to the emergence of the post-positivist paradigm, which rejects the scientific view of human knowledge and considers that truth or meaning comes into existence in, and out of our, engagement with the realities of the world (Crotty, 1998).

The positivist approach was originally developed in the natural sciences to study natural phenomena. As Cohen, Manion and Morrison (2002, p. 6) point out, it is the view that '*knowledge is hard, objective and tangible*' that lends itself to the natural sciences with its emphasis on the researcher's role as an observer and external to what is being examined. Positivism is dominated according to Maykut and Moorhouse (1994, p. 7) '*by a belief in objective observation, quantifiable data and verifiable truths*'. The emphasis of positivism is on objectivity and the researcher stands outside what is being researched.

The research methods associated with positivism are experiments and surveys, and statistical analysis and mathematics are the techniques used to interpret the data Creswell (1994). The methodology then is quantitative as it is concerned with numbers, whereas qualitative research which is associated with the post-positivist paradigm, places emphasis on the understanding and pattern of people's words and actions.

Post-positivists, according to Gill and Johnson (1997, p. 35) '*reject the stimulus-response model of human behavior that is built into the methodological arguments of positivism*'. Interpretive (qualitative) research methods were developed in the social sciences to enable researchers to study social and cultural phenomena. To see knowledge as personal, subjective, and unique, imposes on researchers an involvement with their subjects and a rejection of the ways of the natural scientist. Examples of qualitative methods are action research, case study research and ethnography (Crotty, 1998). Qualitative data sources include observation and participant observation, interviews and questionnaires, documents and texts, and the researcher's impressions and reactions. Denzin & Lincoln (1998, pp. 2-3) describe qualitative research as being '*multi-method in focus, involving an interpretative, naturalistic approach to its subject matter*'.

Interpretive approaches to qualitative research stress the importance of reflexivity, which Lincoln and Guba (2000, p. 183) describe as '*the process of reflecting critically on the self as researcher*'

3.2.2 Educational Research and the Paradigm Debate

Interpretivists question the applicability of the scientific paradigm with its emphasis on measurement, testability, and the use of reason in the educational field. Usher (1996) has argued that in the areas of social and educational research these areas are more concerned with interpretation, meaning and illumination, and the previously dominant positivist epistemology and its claims to the validity of knowledge are inappropriate.

At the beginning of the 70s the prevailing paradigm in educational research sought to research the understanding of human learning by impersonating the methodologies of the natural sciences. This proved to be inadequate as something richer was needed.

The 'illuminative approach', coined by Dr Malcolm Parlett (1977) seemed to capture what was needed for particular types of educational research. The question for my research was how could you study the teaching-learning process and what was an appropriate way of thinking about it. For my research I would argue that it is to focus on

the student learning in the learning event of the PBL module. The learning event became the focus and the task was to describe and analyse what was happening, and to understand it from the students' point of view. I decided it was not appropriate for my research to use tests, random samples, matching control groups, and statistical analysis.

According to Griffiths (1999, p. 70) '*educational research is a form of practical inquiry, which fuses inquiry with practice*'. This ties in with Schon's (1987) idea of reflection-in and reflection–on practice, which has driven much recent educational research and practice. He believes that practitioners need to study their own practice and generate their own personal theories out of this practice. This is what influences action researchers who argue that it is the practitioner on the ground that is in a unique position to observe, reflect, and act on teaching practice. They see this type of research as equally valid to that of the 'traditional old scholarship' ways of thinking and acting. Mcniff (2002) advocates a new scholarship of thinking that celebrates person-centred approaches in which people, individually and collectively, account for themselves to one another.

Cohen, Manion and Morrison (2000, p. 3) reiterate this in stating that '*educational research is the move towards applied and evaluative research and away from 'pure' research*'. This study is influenced by the action researchers position, which questions the underlying assumptions that drive policy issues and challenge educational researchers to posit alternative knowledge claims.

The faith in rationality and science that positivists have has come under attack by post-positivists. It is argued (Edwards, 1994; Usher, 1996; McNiff, 2002; Griffiths, 1999) that knowledge or knowledge claims should be challenged. Knowledge is not always something static that can be measured; rather it is fluid and in a constant process of development as new understanding emerges.

Such views challenge the traditional scientific paradigm of what constitutes knowledge and in turn poses challenges to traditional research. Post-positivists and post-modernists argue for new ways of research and interpretations of knowledge claims. Narratives, story telling, poetry and metaphor are all techniques, which they encourage.

3.2.3 Rationale for using Interpretivism

Interpretivism locates itself within the post-positivist paradigm. While positivist research has merits, it is not very appropriate in this study as positivism *'fails to take account of our unique ability to interpret our experiences and represent them to ourselves'* (Cohen, Manion and Morrison, 2000, p. 19). I aim to explore the subtle and complex differences in human behaviour where deep understanding rather than broad generalization are being sought. I am in search of an emerging theory and believe that the research is socially situated and that through this interaction meaning comes into being. My research questions ask what the PBL experience was like for staff and how it impacted on their pedagogical stance. In seeking to get at this information the interpretive approach offers an opportunity to see things from the participant's perspective.

I agree that with the interpretive position that there are different interpretations of reality. One just has to be willing to distinguish between legitimate and illegitimate claims about the equal validity of interpretations. This means having a really open mind about accepting alternative claims to knowledge or other points of view. The explicative approach that is found in the natural sciences focuses on causality, whereas the interpretive approach, found in the human and social sciences, is concerned with understanding (Crotty, 1998). My theoretical perspective then is interpretive, and the methodology governing it is qualitative, as I aim to come to a deep understanding of the PBL experience as experienced by the participants on the module chosen for this study.

3.2.4 Voice of the Researcher

Charges against interpretivism are that it is anti-intellectual and not *real* research. But this comes from an epistemological position of certainty and objectivity. If one views knowledge as personal, subjective and unique, as post-positivists do, then it is most appropriate in educational research which is concerned with elucidating the meanings of human actions within social interactions in order to improve practice. This is often through personal involvement based on observation, intervention and reflection where

improvement of practice may be through personal experience, reflection and intervention. This is why action research is so popular in educational research.

In action research the researcher is centrally involved in the research process and attempts to bring about improvement in one's practice based on a series of cycles of planning, acting, observing and reflecting (McNiff and Whitehead, 2002). I initially thought this would be an appropriate approach for my research however, the programme on which I am conducting my research is now completed and the opportunity to bring about change within the research timeframe is not feasible. Nevertheless, I do share the same underlying assumptions of action researchers as they situated themselves in the same theoretical framework.

Critics of the interpretive approach such as Giddens, Argyle, and Berstein (cited in Cohen, Manion and Morrison, 2000, p. 27) suggest that interpretive methods have much more in common with literature, biography and journalism. This implies that rhetoric and writing in a personal manner is not considered as a valid claim to knowledge and is a characteristic criticism emanating from the positivists. Lincoln and Guba (2000, p. 183) assert that

> *Today voice can mean, especially in more participatory forms of research, not only having a real researcher- and a researcher's voice- in the text but also letting research participants speak for themselves...*

The traditional research paradigm suggests a disinterested and neutral world with the researcher absent from the text, and faith is placed in the findings which are secured by an established scientific methodology. The voice of the researcher is missing in the scientific paradigm and it is this voicelessness that the interpretivists challenge. I think it is appropriate that the voice of the researcher in this study should be evident as being both researcher and research participant I am inextricably linked with the research process. Consequently I believe, it is legitimate to insert the *I* and the *my* into this dissertation. Furthermore, Holliday (2002, p. 143) asserts that '*the use of the first person is a major device for separating the researcher's agenda from the other voices in the text, thus increasing transparency and accountability.*'

3.2.5 Trustworthiness of the study

Positivists can be sceptical of interpretive research and I think with justification if the research is not carried out with honesty, integrity and academic rigour. Equally one can criticise positivists for their bias or dishonesty. Traditional research is not value-free and unbiased despite its claims as all research has underling assumptions. The oft quoted *'Lies, damned lies and statistics'* (Disraeli) illustrates the cynicism with which objective, measurable research can be held in. And how often do we hear debates supported by statistics to justify opposing arguments?

Edwards and Usher (1994, p. 10) question the positivist's claims '*...of objectivity and value-neutrality in the making of knowledge-claims'*. They go on to say

> *the epistemological stance which sees scientific method as producing value-free and therefore 'true' knowledge is no longer so readily accepted. There is an increasing recognition that all knowledge-claims are partial, local and specific rather than universal and ahistorical, and that they are always imbued with power and normative interests*

Validity has to be located within the research paradigm being used. Interpretive research has to be faithful to interpretive principles as outlined by Cohen, Manion and Morrison (2000, p. 106). No statistical tests exist in qualitative research to validate findings. The researcher bears the burden of discovering and interpreting observations. I agree with Gronlund's assertion (cited in Cohen, Manion and Morrison, 2000, p. 105):

> *In qualitative data the subjectivity of respondents, their opinions, attitudes and perspectives together contribute to a degree of bias. Validity, then, should be seen as a matter of degree rather than as an absolute state*

In qualitative research validity is replaced by trustworthiness because this is seen as a term that provides a more transparent representation of the ways in which the qualitative researcher seeks to ensure credibility. Trustworthiness relies on the trust of the researcher and their honesty. It should be recognised for what it is: messy and fragile as reality is. Traditional researchers distaste for interpretative, postmodernist approaches is based on the messy, evolving and inconclusive nature of the research process as distinct from being measurable, neat and definitive.

Post-positivists (Edwards and Usher 1994; McNiff 2002) argue that we should be upfront and honest about our involvement in the research process. Fischer and Savin-Baden (2002) suggest that one should take the following steps: situate ourselves in the research; voice our mistakes; make clear our stance in relation to the data; take a critical stance towards the research. I intend to follow this advice.

I would argue that it is precisely because of the very fact that interpretivists make their assumptions and values explicit and expose their research to criticism that it could be said that it is more honest and transparent. Gergen and Gergen (2000, pp. 1027-1028) in referring to the process of reflexivity underline the transparency of the interpretive approach:

> *Here investigators seek ways of demonstrating to their audiences their historical and geographical situatedness, their personal investments in the research, various biases they bring to the work, their surprises and 'undoings' in the process of the research endeavor.*

Interpretivists do not say anything goes, rather the opposite. Making assumptions explicit, honesty in the research process and reflexivity ensure methodological rigour. As Gergen and Gergen (2000) assert *'Ultimately, the act of reflexivity asks the reader to accept itself as authentic, that is, as a conscientious effort to "tell the truth" about the making of the account'.*

Usher (1996) argues that there is no such thing as 'disinterested' research or value-free knowledge. What one needs to be aware of is how our values permeate our research and Gadamer, (cited in Usher, 1996, p. 21.) goes so far as to say that rather than seeing our pre-understandings as bias or prejudices, being aware and explicit about one's values make one *'more open-minded because, in the process of interpretation and understanding, they are put at risk, tested and modified through the encounter with what one is trying to understand'.* This is the approach I intend to follow.

3.3 Case Study

Case studies frequently follow the interpretive tradition of research: namely seeing the situation through the eyes of participants (Cohen, Manion and Morrison, 2000). I consider the case study which is qualitative and reflective in nature to be the most appropriate methodology to generate an emergent theory.

The essence of case study is that it is enquiry in a real-life context, as opposed to the constructed context of experiment or survey. Geertz, (cited in Cohen, Manion and Morrison, 2000, p. 182) suggests:

> *Case studies strive to portray 'what it is like' to be in a particular situation, to catch the close-up reality and 'thick description' of participants' lived experiences of, thoughts about and feelings for, a situation.*

My approach to this study is to explore the perceptions of staff members on a specific staff module at a particular time and to get a sense of what that experience was like. Yin (1994) identifies the aim to explore certain phenomena, and to understand them within a particular context, as one of the characteristics of case study research.

The type of study I am conducting has many of the features of case study as defined by Hitchcock and Hughes (cited in Cohen, Manion and Morrison, 2000). They see the use of case study as particularly valuable when rich and vivid description is being sought and amongst the hallmarks of case study they include: a chronological narrative of events; blending a description of events with the analysis of them; focus on individuals or groups and seeking to understand their perceptions of events; researcher is integrally involved; an attempt is made to portray the richness of the case in writing up the report. All this resonates with what my study is about.

There are many types of case study and Yin (1984) identifies 3: exploratory, descriptive and explanatory. Stenhouse (1985) identified four: ethnographic, evaluative, educational and action research case studies. My objectives would seem to have more in common with Stenhouse's (1985) educational case study. I am not so much concerned with social history or with evaluative judgments but rather with the understanding of educational action. Through seeking answers to my research questions namely, what

was the PBL experience like and how has it impacted on your pedagogical stance, my aim is to enrich the thinking and discourse of educators by the systematic and reflective documentation of evidence, and to reach some conclusions and recommendations.

3.3.1 Criticisms of the Case Study Approach

Case study has its fair share of criticisms. Chief amongst these is the paradox of the study of the singular and the search for generalisation. Simons, (cited in Bassey, 1999, p. 36) far from seeing this as a problem deems it as a necessity in order to reveal both the unique and the universal, and the unity of understanding.

Many of the criticisms directed at action research seem to apply to case study also. Adelman, (cited in Robson, 2002, p. 102) considers much of educational action research to be '*inward looking and ahistorical*' and of poor quality. It is argued in Robson that the close relationship between researcher and participants could be at variance with the democratic stance of action research as the central role of the researcher's perceptions might be biased. Critics of case study also point to the lack of legitimacy and respectability. Similar criticisms have been mentioned in chapter three in referring to interpretive approaches to research. The defence against such criticisms can equally be used here in relation to case study. Cohen, Manion and Morrison, (2002, p. 185) suggest that quantity and frequencies of occurrences can be replaced by quality and intensity. '*Significance rather than frequency is a hallmark of case studies, offering the researcher an insight into the real dynamics of situations and people*'.

3.4 Evaluation

This study looks at how the participants on a staff development programme experienced the programme and as such does have an evaluative aspect to it. However, it is not in the strict sense an outcomes orientated evaluation as the purpose is to understand and enter into the world of the participants rather than to see if aims and objectives were met. To understand the perspective I have taken this section outlines some of the approaches I have reviewed and the benefits and limitations that these approaches offer. I have identified a model that is appropriate for the type of study I am undertaking and this is explained in further detail.

Evaluation is an area, which has exercised many commentators for a considerable period of time, and many different approaches are recommended from numerous sources. There are two distinct approaches to evaluation. The scientific approach or the social/anthropological or illuminative approach. The variety of models within these paradigms is developed to help evaluators know what steps to follow, and issues to consider, in designing and implementing a study.

The classic model of evaluation is goals-based evaluation, that is, measuring the extent to which a program or intervention has attained clear and specific objectives (Patton, 1990). Goals-based, quantitative, outcomes-oriented evaluations represent only one way to approach evaluation. Much of the literature that I have come across is of this nature but these models do not offer an answer to the purpose of my research as they are limited to outcomes and are more quantitative in nature.

The illuminative approach is a qualitative approach that seeks to examine and explore the process of the educational intervention. It is more subjective in nature and calls on personal judgments. I am interested in this approach and agree with Robson (2002) who maintains that evaluation is usually carried out to see to what extent a programme's explicit objectives have been met, but there are other aspects such as making space for unplanned or unanticipated outcomes or processes. An alternative to the goals-based evaluation model is goal-free evaluation. (Patton, 1990).

Traditional evaluation restricts itself to asking questions about outcome and measuring how far a programme has met its stated objectives or goals. I am emphasising the process evaluation which is concerned with answering a 'how?' or 'what is going on?' question. The experiences and interactions provided by the programme are the focus of interest and are the prime criteria for judging its value (Robson, 2002), and for this reason I would be drawn to the illuminative model.

Robert Stake's (1995) 'responsive approach' along with Ernie House's 'transaction model' and the illuminative evaluation approach of Parlett and Hamilton (cited in Patton, 1990) stress the importance of personalizing and humanizing the evaluation process. These models are based on the same assumptions that underlie qualitative research and would resonate with my purpose of evaluation; namely to let the participants speak and to emphasise the process.

3.4.1 Kirkpatrick's Model of Evaluation

It is important to have a specific framework from which to conduct one's research questions and so I have considered the Kirkpatrick's (1975) four-level model of evaluation used in the evaluation of training for this purpose. This is a classic model of evaluation used by training professionals around the world. This model acknowledges that we evaluate for a number of different, and unique reasons and in a number of different, and unique ways.

In Kirkpatrick's four-level model, each successive evaluation level is built on information provided by the lower level. Each successive level represents a more precise measure of the effectiveness of the training program, but at the same time requires a more rigorous and time-consuming analysis.

Figure 7. Kirkpatrick's four-level model of evaluation

Winfrey, E. (1994) Encyclopaedia of Educational Technology (ed) Hoffman, B. (Source:http://coe.sdsu.edu/eet/Articles/k4levels/start.htm)

Level 1 evaluation is concerned with *reactions*. It is purely a measure of 'customer satisfaction' and not a measure of the 'quality' of the participant's experience. It is, nonetheless, an important initial measurement of participant's response, and one that may lead to further areas of examination. In my questionnaire it will be used as an introduction into the more focused areas of examination and help participants to reacquaint themselves with the module.

Level 2 is concerned with *what was learned?* Assessing at this level moves the evaluation beyond learner satisfaction and attempts to assess to what extent students have advanced in skills, knowledge, or attitude. Level 3 functions as a check to see if the training is actually used or has impacted on their behaviour and attitudes. Level 4 measures the bottom line result of the training and tries to ascertain if it has had a positive effect on the institution.

The layered approach of Kirkpatrick provides an appropriate model on which I base my questionnaire as the type of areas I want to investigate equate to the levels outlined above.

Figure 8. Adapted Version of Kirkpatrick's Model.

Level 1 Reactions Were they happy/dissatisfied with the module?
Level 2 Learning What did they learn?
Level 3 Behaviour and Impact Did the module change their conceptions of teaching? What changes have they incorporated into their work?

My main reason for excluding level four is that I am only concerned if participants actually used PBL in their teaching to the extent that this has had an impact on themselves rather than having had an impact on DIT. I think the sample is too small to have had any significant influence on the organization as a whole and I think that future studies would be more appropriate to evaluate this when a larger cohort of students become available. I intend therefore to dispense with level four. Another consideration is that even though a person learns something, it does not mean that he/she will apply that learning to their job, (level three) or that the learning will affect the overall operations of the organization (level four).

3.5 Data Collection

While there are elegant philosophical rationales and theoretical underpinnings to qualitative inquiry, according to Patton (1990, p. 9) *'the practical applications come down to a few very basic and simple ideas: pay attention, listen and watch, be open, think about what you hear and see, document systematically and apply what you learn'.* This is the approach I am adopting.

Qualitative methods have been described by Van Maanen (1983, p. 9) '*as an array of interpretative techniques which seek to describe, decode, translate and otherwise come to terms with the meaning, not the frequency, of certain more or less naturally occurring phenomena in the social world*'. The main data collection methods are outlined below in Figure 9.

Figure 9. Data Collection Strategies

Journals and diaries	Narrative description
Group activities	Personal field notes
Interviews*	Focus discussion groups
Checklists and inventories	Portfolios of materials
Student achievement data*	Questionnaires*
Structured observations	"Backtalk"

Welch, M (1998). *Queen's University, Faculty of Education Theory and Professional Practice. Prof 190 and Prof 191 Action Research Assignment*

Source: Welch, M http://educ.queensu.ca/~russellt/howteach/arguide.htm

The method I have chosen and that I believe is the most appropriate for this study is the questionnaire followed by a member check. Member checks according to Mertens (1998) are the most important ways of ensuring the credibility of findings as it allows for corroboration and prompts multiple perspectives. This combination of collaborative and narrative inquiry allows the research to be explorative, rigorous and reflexive. According to Gray (cited in Bell, 1999, p. 16)

> *A narrative approach to inquiry is most appropriate when the researcher is interested in portraying intensely personal accounts of human experience. Narrative shows voice-to the researcher, the participants and to cultural groups- and in this sense they can have the ability to develop a decidedly political and powerful edge*

3.5.1 The Research Instrument

A questionnaire is used to ascertain the experience of participants on the PBL module. The questionnaire is predominantly qualitative with just a few quantitative questions to allow for easy access to factual information. (See appendix B)

Originally I had intended to interview each participant using a semi-structured interview technique. However, as time went on I decided that the use of the questionnaire was more appropriate than an interview as quite a considerable time had lapsed since

participants actually did the PBL module on which the study is based (two years). I decided they would need both time and some prompting with the use of course materials (the problem sheets, course outline, assessment details) to help them re-focus and reflect on their experience. Another consideration was the time and cost involved in conducting interviews and I considered at this stage of the process a questionnaire would be more appropriate to progress the research.

The first section of the questionnaire looks for factual background information. This was needed to give some biographical information and to provide some personal background from which the research could lend a more personal portrait. It also aimed to get an overview of how participants conceived of themselves as teachers and what their teaching strategies were. The questions on teaching were influenced by the teaching inventory (ATI), developed by Prosser, Trigwell and Taylor, (1994) and on research on third level learning and teaching by Ramsden (1992) and Kember (1997). The other questions are derived from and divided into sections based on Kirkpatrick's (1975) evaluation model, used in the evaluation of training. I did not use Level 4 evaluation, as this is not within the scope of the study.

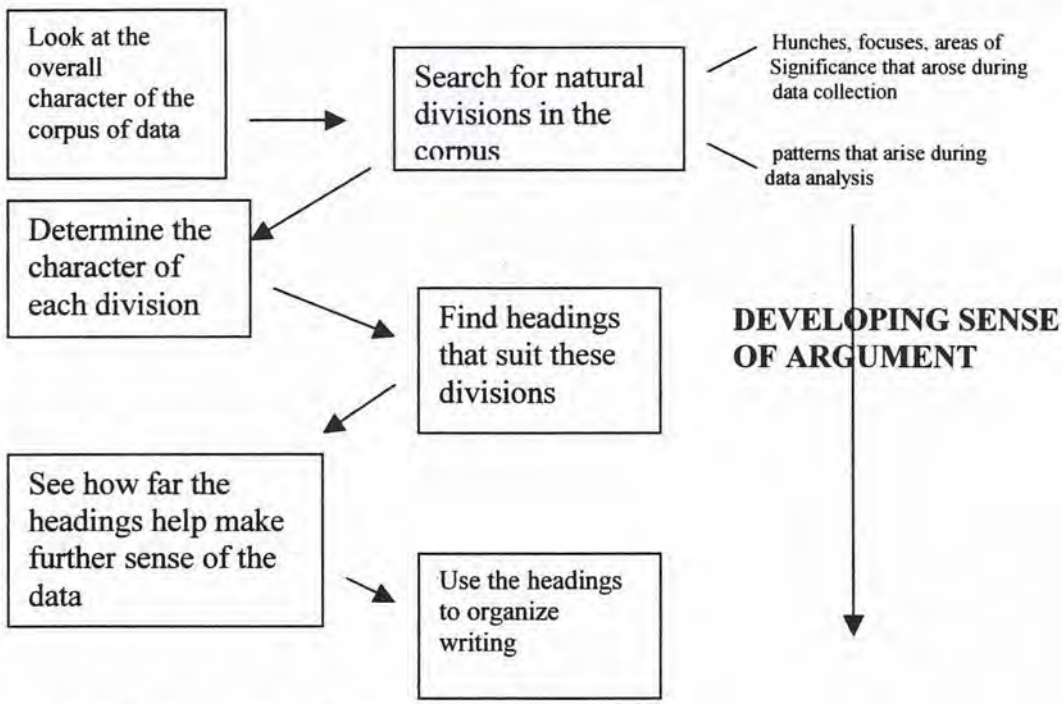
3.6 Data Analysis and Interpretation

In deciding what methods of analysis to choose I believe there will always be limitations. Awareness of these limitations is central. My research is situated in the constructivist-interpretive paradigm and is influenced by Parlett and Hammiliton's (1977) illuminative approach, Niemi and Kemmis (1999) work on reflexivity and Savin-Baden's (2002) interpretive approach.

As this is a qualitative study of the participants' experience, the participants' words are the data. I intended to let them speak and quoted their words liberally. I propose to organise the data by using a thematic analysis of the data that emerges from the questionnaire. Analysis is based on reflecting on the experience my colleagues and I shared on the module and in finding shape, pattern and meaning in what it had produced. Figure 10 illustrates this approach. The formation of themes emerges from

the dialogue between data and researcher, which helps to further make sense of the data, and in turn provides a structure for writing.

Figure 10. Arriving at and using themes



Source: Holliday (2002, p. 105)

Marshall and Rossman, (1995, p. 113) say '*Analytic procedures fall into five modes: organising the data; generating categories, themes and patterns; testing the emergent hypotheses against the data; searching for alternative explanations of the data; and writing the report*'

I think that this is an eminently sensible way of getting to grips with the data. Drawing on the work of Kirkwood and Kirkwood (1989) Holliday (2002) and Savin-Baden (2000) in relation to interpretation and analysis, the analytical framework for my study emerged. My analysis and interpretation is therefore guided by the following:

- Situating the participants and myself in the research.
- Looking for similarities and differences across the data. Looking at the language used and recognizing the subtext. Note how the participants define themselves and recognise oppositional talk.
- Use quotes to support emergent themes

Savin-Baden (2002) suggests taking a thematic approach to data analysis and drawing together main themes using extracts from the data to support the emerging themes.

Kirkwood and Kirkwood (1989) suggest taking a three level approach to decoding data. The first level is descriptive and describes the events as they are. The next level referred to as the affective level, tries to understand what is going on. The third level, the interpretative/analytical level attempts to find out what it all means?

Holliday (2002, p.119) talks about keeping the levels of analysis separate. He argues that by keeping the data separate from the discursive commentary and argument, that the researcher adds to the clarity and validity of the research. He maintains that '*this helps to manage one's own perception of the difference between (a) noting physically what can be seen and heard and (b) noting what this means and why it is significant*'.

Based on the above works and combining the various levels of analysis, I decided to use a four level approach for the analysis of the data in this research. I begin with a descriptive level and use extracts from the questionnaire that the participants completed. The second level is analytical and asks the 'what is going on here' question. The third level is the interpretative level which asks 'what does this mean' and finally a decisional level is reached where recommendations are suggested.

3.7 Ethics

The final section of this chapter discusses the ethical considerations of the study and how it will be presented. In qualitative research, it is the researcher who is the major research instrument and this has further ethical considerations.

The DIT Research Ethics Committee was established in 1998 as a subcommittee of the Postgraduate Studies and Research Committee. Its mission is to provide all DIT researchers, staff and students, with the resources for understanding and addressing ethically significant problems that might arise in their research, and to promote responsible research and practice. I am aware of the guidelines and will take them into consideration in my study. Bell (1999, p. 45) believes that in carrying out research '*common sense and courtesy will go a long way to establishing good practice*'. This is the approach I intend to take but I also intend to establish my own personal code of practice based on the checklist provided in Bell and shown below in Figure 11

Figure 11. Personal Code of Practice: for negotiating access, ethics and the problems of 'inside' research

1. Clear official channels by formally requesting permission to carry out the research.
2. Speak to the people who will be asked to cooperate.
3.Provide an outline of intentions and conditions under which the study will be carried out to hand to participants.
4. Be honest about the purpose of the study and about the conditions of the research.
5. Decide what I mean by anonymity and confidentiality.
6.Inform participants what is to be done with the information they provide.
7. Maintain strict ethical standards at all times.
8. Only promise what I can deliver

I have also devised an ethical statement based on the ethical guidelines as prescribed by the British Educational Research Association (1992). Prior to carrying out the research I contacted and informed the prospective participants by letter, detailing what my intentions were, and sought their cooperation (See Appendix C). Consequently, I needed to state 'up-front' what my purpose in conducting the research was and what I would do with the information that I received. The participants agreed to take part in the research by signing a statement of informed consent. (See Appendix D). This process of careful preparation, involving explanation and preparation, before any data collection is what Cohen, Manion and Morrison (2000, pp. 50-51) refer to as the principle of '*informed consent*'.

3.8 Research Plan and Timescale

Figure 12. Research Timescale

TASKS	SEPT	OCT	NOV	DEC	JAN	FEB	MAR	APRIL	MAY
PROPOSAL									
Complete proposal & theoretical framework									
Hand in completed proposal		31st ◆							
Submit work in progress paper			19th ◆						
Present work in progress			28th ◆						
DATA COLLECTION									
Devise questionnaires									
Arrange interviews									
Conduct interviews									
Collate interview data									
Analyse data									
Liase with interviewees to review data									
Document findings									
THESIS									
Establish structure of thesis									
Submit draft								31st ◆	
Edit thesis									
Submission of final thesis									19th ◆

3.9 Summary

In situating myself within a constructivist-interpretive paradigm and drawing upon post-modernism, the assumption is that there are multiple realities and I subscribe to the view that knowledge can be seen as personal, subjective and unique and not just as hard objective and tangible. The credibility and trustworthiness of the research is based on the transparency of the position I take, making my assumptions explicit, being honest in the research process and being continuously reflective. In addition, adhering to the conventions of academic discourse, the rigour of the research is maintained.

In seeking different types of information, different approaches have to be considered. The type of information I am seeking, if measured in a quantitative way would not provide an accurate portrayal. Given the nature of the enquiry and the data being analysed, an alternative to the positivist view is required. I do not discount positivist research, as it is relevant and appropriate in the scientific area but I do not consider it appropriate for this particular study with its focus in educational research.

In particular I argue that I have situated myself in this debate by arguing that the post-positivist approach is more relevant to this research and the qualitative design is more appropriate in addressing my aims and objectives. I do not wish to polarise myself into a positivist versus post-positivist argument rather I am influenced by the postmodernist view as outlined by Usher (1996, p. 25):

> *Postmodernism reflects the contemporary decline of absolutes and a questioning of the belief that following the correct methods guarantees true results. It is not anti-science but instead emphasises the need for science to be self-reflective about its limitations.*

Some argue that qualitative research is too 'touchy feely'. I have argued that my methodology is reflexive and seeks validity through clarity about the voice of the researcher and the transparency of the research design ensures the trustworthiness. My approach to this study is, as stated before, guided by my understanding of reality as being socially constructed and is underpinned by post- positivist philosophy. In chapter four the research findings are presented, analysed and discussed according to the methodology outlined in this chapter.

Chapter Four

Findings

CHAPTER 4

FINDINGS

4.1 Introduction

This chapter outlines the findings of the research undertaken and the data collected. I present my data as a narrative and include excerpts from the participants. In reporting the findings I use the voices of participants as I believe this reflects their realities, perceptions, feelings and experiences. I refer to my own questionnaire responses in the third person as this provides me with some sense of distance and reflexivity in reporting the findings.

Analysis of the data is based on the work of Kirkwood and Kirkwood (1989), Holliday (2002) and Savin-Baden (2002). Initially the data is presented at a descriptive level. An analysis of the data follows whereby reflection upon the data enables themes and ideas to be drawn out. Based on this an interpretation is offered and finally a decisional level is reached where recommendations are suggested. I structure this thematic analysis around the questionnaire used in the study and it provides the framework from which the main areas of investigation arise:

- Participants Reaction to the course
- The Learning Perspective
- Assessment
- The Teaching Perspective (Pedagogical Stance)

The data from each theme is further sub-divided to enable a detailed description to emerge. Details from the module descriptor are included where appropriate to conceptualise the data. The methodology for the compilation of these findings comes as a *post* course reflection of participant's experiences of the PBL module.

As both researcher and researched I acknowledge the potential bias or subjectivity that could arise and have taken cognisance of this by taking a reflective stance as I go through the data. Pseudonyms are used in the presentation of these findings so as to

provide anonymity for the participants. However, in keeping with the interpretive approach and to maintain the transparency and the integrity of this study, my own quotations appear under my own name. The reader can then be the judge if any bias on the part of the researcher is evident.

4.2 The Participants

The module began with seven students but within a week one had to leave due to illness. The age range of the students was between 30 and 50 and the gender balance was fifty-fifty. Teaching experience was varied as some had been teaching for nearly twenty years and others had only a few years teaching experience. This was due in part to the nature of their job where teaching is only one part of their duties. Other duties include research, management and careers counselling. Although the group had two members from the same subject area there was a good range of subjects and departments represented. These included the Department of Social Science and Legal Studies, the Printing Department, the Department of Electrical Services Engineering the Faculty of Arts, the Faculty of Tourism and Food, and myself a lecturer in the Faculty of Engineering. Four of the participants were employed as Lecturers and two as Career Advisors. None of the participants had any previous experience of PBL.

4.3 Reactions to the Module

The questionnaire began by seeking to establish some biographical facts of the participants and enquiring as to why they had signed up for the course. The next section set out to ascertain participants' reaction to, and satisfaction with the PBL module.

Reaction to the module was predominantly positive. Four of the six participants had a positive to very positive reaction. One of them was satisfied and one had a more negative reaction. This was ascertained by requiring participants to tick their level of satisfaction with the course on a five-point scale from very good to very poor.

The physical resources, expertise of the tutor and the good group dynamic were all mentioned as being helpful in the learning environment. Lack of time and workload

were mentioned as unhelpful. Asked to *sum up* their reaction to the module, the responses were overwhelmingly positive:

> "Generally positive, primarily due to the good relationships established within the tutorial group."
>
> (Alice)
>
> "Enjoyable but reservations about the practicality of using PBL in short-courses."
>
> (Eddie)
>
> " Enthusiasm. I felt I had learnt an awful lot and a variety of skills. I was eager to try out what I had learnt and incorporate it into my own teaching. I could see the power of PBL at first hand and it works."
>
> (Una)

John's description is more detailed and captures the essence of the PBL encounter:

> " My reaction to the module is generally a positive one. Initially there is a culture shock of having to take responsibility for your own learning, and the lack of clear directions from the tutor 'down' to the group. All my experience to date had been one of sussing out what was required by a lecturer for an exam and reproducing this. There always was a kind of power game in education- learning the least amount I needed to obtain the marks I aspired to. Words such as reflection, ownership and responsibility really never entered the frame. With PBL these words took on a new importance and for me are words intrinsic to one's career."

4.4 Analysis

The reactions level (level 1 Kirkpatrick) is similar to what is commonly referred to as a 'happy sheet' and appeals to participants on an emotional level. Their overall satisfaction level is ascertained but is closely allied to a gut level reaction. Factors that may have influenced the predominantly positive reactions are that the participants were the first people to do this module (pilot module) and did so voluntarily. This would suggest that they were more open-minded and receptive to new ideas.

Most of the participants cited their desire to improve their teaching as the reason for doing the course. However, I decided this needed further exploration as four of the

students intended to continue on to complete the Diploma in Third Level Teaching and Learning and as the PBL module was an obligatory part of this I surmised that there may not have been any implicit interest in PBL by these particular students. Two participants had signed up to only do the PBL module so I wondered if this would mean they would be more disposed towards it. The impact of the PBL module I felt was intrinsically related to one's reason for doing it. Time and memory lapse since the module occurred, and subsequent experience *of* and *with* PBL may have influenced participant's responses also.

4.4.1 Interpretation

It is not surprising that participants generally had a positive reaction to the PBL module. The physical environment was conducive to learning as tutorials took place in bright, comfortable and well-equipped rooms. Library resources and Internet facilities were available and there was a relaxed and supportive environment. I wondered to what extent this coloured their reaction to PBL.

Other factors to take into consideration in explaining the participants positive reaction to PBL was to ascertain to what extent the opportunity to meet like-minded people (all interested in improving teaching and learning) played and having the mental and physical time and space to explore issues.

4.4.2 Recommendations

I think the fact that participants had a near ideal physical setting for this module and had the mental space to engage with educational concerns and issues with colleagues were key factors in influencing their positive responses to this module. It would therefore be prudent to ensure future PBL practitioners had similar resources to support them and that 'communicative spaces' (Niemi and Kemmis, 1999: Savin-Baden and Wilkie, 2002) be encouraged where interested colleagues could discuss, share, support and progress their PBL initiatives.

4.5 Learning Perspective

The Learning Perspective was broken down into the various elements of the PBL module so as to provide the reader with a framework around which the comments of the participants were placed. There was a mixture of responses in this area but again overall the experience was deemed positive.

4.5.1 The Tutorial Process

The tutorial process is central to PBL and it is through this process that the students are actively engaged in the learning process. This is where they take ownership of the learning and engage in the team process. As described in the literature review section, there is a specific structure to the tutorial.

In this tutorial process students using the whiteboard worked through the four-step process of ideas, facts, learning issues and action plan. The students took turns in taking on the roles of chairperson, scribe and reader. Students were asked about their views of the tutorial process.

The transition from passive to active learner and the re-definition of student and teacher roles was deemed to be disconcerting. Alice in referring to the role change that is required both of students and teachers in PBL had this to say:

> "Very difficult to understand and change learning style. It requires challenging one's understanding of how learning occurs which takes a long time. However, it does force individuals to take responsibility for the group and gives experience of the practical environment."
>
> "...challenging both in terms of students' motivation and the feelings of insecurity that accompany any release of control or transfer of 'power' as it were from teacher to student in the learning process."

Similarly John reported:

> "...the process is initially a bit disconcerting as it is quite different from the traditional methodologies used in education. The open-ended nature of the process can be difficult to cling on to – sometimes I felt I was clutching without getting hold of anything. Questions were answered by other

> questions, leading to insecurity of tenure of knowledge of the process. However once I let go of some of my expectations and began to engage in the process the insecurity became easier to handle and attainment of deeper knowledge became easier to grasp."

He further identifies some of the crucial elements necessary for the successful functioning of the tutorial:

> "Much of the success of the process depends on the personality of the team, which of course is made up of a variety of differing personalities, and experiences of education. Individual responsibility to oneself and the team are crucial elements for progress. Compromise is vital. Honesty is a necessity. Participation crucial. Listening essential. The lack or breakdown of these ingredients can undermine the experience and hence the learning experience. Therefore it is so important that the tutor and the group develop an environment and climate for these key aspects to develop and flourish. I think the tutorial process has the capacity, if managed well, to facilitate both personal and academic development in a much deeper way than traditional chalk and talk approaches."

Other participants recognised the association of traditional teaching with power and control and the assumptions about knowledge:

> "My experience of the process in action is that, provided one is comfortable with the activity of facilitation itself, the loss of control is tempered by the observation of 'real' learning and that this type of process is far more beneficial to the learner than the 'lecture' per say."
>
> (Carol)

This observation points to one of the key benefits of PBL, which is that it promotes deep rather than surface learning. Una also refers to the process of adapting to the role changes required of both student and teacher and the difficulties and frustrations involved:

> "...the PBL tutorial process is a very effective way of structuring one's learning and if followed properly delivers. It did take a while to get used to and at first was a bit awkward and strange as it was a new way of being taught. It definitely took a few classes before the roles of the tutor and students became clear. Once we had a few sessions under our belt I felt we were able to make the most of our sessions. For me personally I found the voicing of opinions and working through the four stages on the whiteboard was very beneficial. It was frustrating at times when people voiced their opinions too much or we ended up going around in circles, but I recognized in time, that this was all part of the process in trying to work out ideas, coming to conclusions and resolving issues."

4.5.2 The Problems

PBL as the name implies revolves around problems. The problem is the starting point for the learning activity, and it is through the resolving of the problem that the learning occurs. During the course of the module the group worked on two problems. Problem one involved making a presentation to other staff members, explaining and justifying the use of a PBL module. The problem as presented is shown in Figure 13

Figure 13. The Professional Body has Spoken

Your professional body has come up with guidelines for preparing the professional of the future. However they emphasise that they want people who will not only continue to develop their technical skills but who will also continue to develop their communication, problem-solving and teamwork skills. A theme in DIT's Action 2000 Plan is to have "more focus on teaching methods that develop critical and independent thinking." One of the action items for this is " to further develop staff research in teaching methods there...e.g. problem-based learning". IBEC, also have repeatedly stressed that employers are looking for graduates with key skills (e.g. communication, problem-solving and teamwork) in addition to technical skills.

Your course team in DIT is redesigning a total programme using a Problem-based learning approach. You are requested to redesign *your module* using a PBL approach to produce graduates with these attributes. Your module descriptor is due on 16th January 2000 for a team meeting where it will be peer reviewed. Barrett (2000)

Source: PBL Module (2000)

I asked the group what were the main things they had learnt from working on this problem?

> "... I was able to grasp the basic relationship between PBL and the DIT Strategic Plan and understand why there was a 'fit'. I also gained some insight into the challenges of PBL."
>
> (Alice)
>
> "What it was like to work in a team. How different team members approach the same subject matter in many different ways. The fact that people learn in different ways. An understanding of pro group and anti group behaviours. The necessity of ground rules for operation of the team. An understanding

of the role of the tutor. How to chair or not as the case may be! The vital role of the recorder – how key ideas can be lost in an instant. How to reflect on my role within the team – generally a reflective team player. How traditional methods leave students short - students are not provided with the contexts for developing key skills in a real world setting. Such skills are vital in modern society. Attempting to come to terms with the differences between ideas, facts and learning issues as the demarcation was often difficult to understand."

(John)

"The main things I learnt were how the tutorial process works. Taking on the different roles and seeing them in operation made it more real. As the chairperson for this problem I learnt the skills of chairing through 'doing' and having to take the responsibility of moving things forward. Practical things such as computer skills and making overheads for the presentation were other things I learnt, but the major value for me was in talking things through with the other group members and being able to see things from other perspectives."

(Una)

Problem two required the group to deliver a visual presentation to colleagues, explaining what the PBL tutorial process is about.

Figure 14. The Enthusiastic Lecturer

You are a DIT lecturer who is very enthusiastic about problem-based learning. You are at the early stage of planning to introduce PBL to some modules of your course. You have got together with some other interested lecturers and have decided to put together a PowerPoint presentation on the tutorial process. You want to be able to show your DIT colleagues how the PBL process works and have decided to use mainly photographs. You are giving the presentation to the Learning and Teaching Centre staff and others interested in promoting PBL in DIT on the 20/2/2001. (This is a forerunner to showing the presentation to your colleagues). The AV Technician has agreed to give you technical advice and support. Barrett (2000)

Source: PBL Module (2000)

Asked about what they had learnt on this problem the following comments were made:

> " The importance of teamwork! By this stage our group was functioning very effectively and I certainly gained insight into how the PBL collaborative processes could contribute to increased opportunities for learning."
>
> (Alice)

> "This increased my personal skills and forced me to understand that on one's own one achieves very little. It also taught me to listen." "The group assignments proved to be very enjoyable experiences. They brought out in me some of the personal skills that I had ceased to practice. Sharing information was never a problem for me but relying on others to set the pace and add to the jigsaw was a little frustrating."
>
> (Brian)

> "We had to rely on each other and build on each other's strengths. Some people were good at technical things others were good at verbalising and we drew on each other's expertise. At the end of the day we each concentrated on different aspects and did not perhaps all cover the same ground as is supposed to happen in the PBL process. However, I think this more accurately reflects real life where one is often under pressure and has to rely on a team effort."
>
> (Una)

However, Carol had a different view:

> "I didn't feel the problem worked terribly well as a group exercise as whilst all contributed only two of us gained experience in and knowledge of the main visual presentation preparation. This I feel may be a problem with PBL work as a whole - where the problem has so many component parts and the time to address the problem is relatively short each member or sub group within the group only learns in-depth their own part of the 'project'."

John considered some of the more practical aspects that the group encountered:

> "How PowerPoint works! How to stay awake all night! The re-enforcement of some of the points above. How the team needed the tutor less and less as confidence in itself and the process developed. Time management is an important skill. Better research of what is achievable in a given time frame would have helped the resolution of the problem. Concerns about the four stages of the process – i.e. if the white board was always the best tool for the job. Confidence that I could start to use the process for working with students. How to be more assertive in a team setting."

4.5.3 Group Work

PBL revolves around the group tutorial process but students are required to pursue independent study to follow up on the action plan agreed on and to report back to the group. In light of the new information and feedback progress is ensured and the tutorial process continues with the next cycle. I asked participants for their views on both the strengths and weaknesses of group work and independent study.

Generally the strengths were seen as enabling the group to proceed at a quicker pace as resources were pooled. There was also a feeling of solidarity and companionship. The group dynamic enriched the learning experience. The weaknesses were that strong personalities tended to dominate or there was not an equal contribution by all members.

Eddie was impressed by the " Range and variation in ideas, thinking and approaches to problem-solving" but aware of "the danger of strong personalities which tended to dominate." For Brian the support of the group effort was evident:

> "Strengths and weaknesses were quickly identified and where weaknesses were hindering the overall performance of the group members quickly took up the challenge to close off the breech."

Whereas everyone seem to appreciate the support supplied by the group and saw the benefits of building on each others strengths there were frustrations which also arose because of the fact that one had to work so much as a group:

> "The benefits of the group work were getting help and advice from each other and having a sense of solidarity. It was very useful to talk things through and see things from other perspectives. However, this often slowed things down and it could get quite frustrating at times. Sometimes it seemed that the group momentum took over and we lost the run of ourselves. I felt we put too much pressure on ourselves in trying to be perfect. If I had been working on my own I would have set more limits on the time and effort as I felt at times we put too much time and effort into our tasks."
>
> (Una)

4.5.4 Independent study

In relation to independent study, self-reliance, autonomy and the need to process information on one's own were mentioned as benefits. Isolation, going off on the wrong track, lack of shared research material and lack of time were identified as weaknesses:

> "...encouraged me to dig deep into my own background and to bring these experiences to the group for consideration. I got a tremendous sense of achievement when the group looked at some of my research and found it interesting, whether it was adopted or not proved not to be the important issue. This independent study brought home to me how my own students will feel when applying the PBL system."
>
> (Brian)
>
> " Independent study prompts study skill development and increases sense of 'ownership' of knowledge. It increases understanding and a critical approach to learning. The downside is that it can be isolating and can be influenced by subjectivity."
>
> (Alice)
>
> "Forced focus. Necessity to bring back information to the group proved very motivational. Isolating at times. If picking up wrong information or not sourcing enough no-one to challenge this and if poor research done group as a whole affected."
>
> (Carol)
>
> Eddie referred to the dichotomy of having autonomy in making decisions and taking responsibility for one's own work but on the other hand not having the support of the group to work towards the problem resolution:
>
> "Lack of discussion and help in working toward problem resolution."
>
> (Eddie)

Una also refers to the difficulties that arose in this area:

> "Independent study gave me time to reflect on the whole learning process and time to step back from the sometimes frenetic pace of the group work. It also gave me the space to digest the new knowledge and to work out things for myself. However, sometimes I didn't know if I was on the right track in following-up my tasks for the group work and this made me uncomfortable. There was some frustration given the lack of time to work things out before the next group session. I also felt pressurised to produce for the group."

4.5.5 Roles of chairperson, reader and scribe.

As part of the tutorial process members of the group are required to take on various roles to structure the tutorial and to progress the learning.

Asked about this experience the participants felt that this process helped them to engage more completely in the group process and forced them to take on more responsibility than they might otherwise have chosen to. Learning new skills and challenging oneself to do something one is not used to doing were mentioned as the strengths. A major criticism of the role of chairperson was that group motivation / organisation was dependent on skills of the chairperson:

> "Individual may not be suited to the task, especially that of chair and as a result the team often become very disjointed and unfocussed. The relationship between the chair and scribe is a vital one and if this breaks down in any way many valuable ideas could be lost."
>
> (John)

Referring to the role of the scribe he cautioned that as the scribe is generally away from the action it is vital to include this individual at all times. Some participants said the role of the reader was really rather redundant.

4.5.6 Guest Speakers

As part of the support for the course, guest speakers are invited in to act as a resource for the students. How useful did the participants find this? Although Eddie felt there were too many guest lecturers and this led to some time wasting everyone agreed that this added to the learning experience as the guests had hands on experience of PBL and were able to share this experience:

> " They spoke from experience. This was the most enlightening and inspiring part of the programme-excellent choice of speakers"
>
> " The course was well documented, with very relevant and high profile guest speakers being presented at appropriate intervals throughout the course."
>
> (Brian)

"Extends understanding by setting in a practical context."

(Alice)

"Good insights, informed the process but would have like to see 'in situ' facilitating PBL in their institution"

(Carol)

4.6 Analysis

The purpose of this section of the questionnaire was to see what the participants had learnt and to get an idea of what the experience was like. All of the participants felt they had gained expertise in understanding the actual tutorial process and that the hands on approach gave them the opportunity to experience at first hand what is involved in PBL.

The benefits of team- work and individual study were articulated but a certain dichotomy seemed to arise between them. On the one hand working as a group member inflicted the pressure to perform and for some it was a new and a demanding experience. On the other hand, independent study was seen as essential for participants to process what had been going on in the group sessions but sometimes this led to feelings of isolation and uncertainty. Lack of time, the pressure to produce findings for the group, and the sense of not knowing if one was on the right track meant that this led to a certain amount of frustration as well.

Participants experienced some discomfort in adjusting to the roles of student and teacher in the PBL process. This initial period of uncertainty and confusion gave way to satisfaction as they realised they had moved form a surface to a deep approach in their learning and was ultimately a more rewarding experience. Most participants did not have major difficulties in adapting to this new role change as essentially the premise on which PBL is based on was consistent with their pedagogical stance.

Group work was seen as positive as people worked to their strengths, more ground was covered, negotiating, listening and debating skills were developed, and an appreciation of other points of view and other ways of learning were acknowledged.

More time was needed for individual study and thus the resources available in the Teaching and Learning Centre were under-utilized. The use of guest speakers as resources was particularly useful as their real experience and relevance to the participants, was timely.

4.6.1 Interpretation

All of the participants experienced some level of difficulty in adjusting to the role changes required of them as students in the PBL tutorial process. This is substantiated by other research into student experiences of PBL (Murray and Savin-Baden, 2000; Dahlgren, Castensson and Dahlgren, 1998). From their perspective as teachers the participants became acquainted with the role of the teacher as facilitator and recognised that a relinquishing of power was necessary. This recognition and subsequent familiarity with the functions of student and teacher are key areas in successful implementation of PBL and highlights the fact that the hands on training proved successful in not alone providing them with the necessary skills for conducting PBL but also led them to a deeper understanding of the conceptual changes that might be required.

The hands on experience helped the participants to appreciate how their own students might experience PBL, the advantages, the pitfalls and the emotions that they might encounter. Schmidt and Moust (1983) refer to this ability to empathise with students as 'social congruence' and deem it necessary for successful tutoring in PBL.

Apart from developing a deep understanding of what PBL is, the roles involved, the structures needed and the practical skills that can be acquired, being able to work as a team member was referred to frequently. Though there was a level of frustration at having to be a team player everyone recognised the advantages and the importance of being able to get on with other people, being able to appreciate other's views, listening and negotiation. These key skills as highlighted in chapter one are seen as pivotal in today's world as increasingly people are required to be team players in the workplace.

The literature review highlighted the need to have trained staff as one of the vital factors necessary for successful implementation of PBL (Nayer, 1995; Wilkerson and Hundert, 1997), that practical 'hands on experience' is very effective in training (Hitchcock Mylona and Zoi-Helen, 2000; Schwartz, Mennin and Webb, 2001) and that the adoption of new practices are contingent on conceptual change (Murray and MacDonald, 1997; Kandlbinder and Mauffette, 2001). It would appear from the participant's comments in this study that the module was successful in meeting these conditions.

4.6.2 Recommendations

Developing teamwork skills, using PBL to teach key skills and specifying the roles of tutor and students in the PBL learning process were some of the objectives of the PBL module. Comments from the participants suggest that these objectives were successfully met through the practical hands on approach.

The objective of developing participants effective and efficient self-directed study skills it would seem was not as successful. Comments in relation to independent study suggest that more time should be allotted to this as it was recognised as being important to be able to take on board and digest the vast amounts of material. Given a specific timescale perhaps this is not feasible and perhaps the fact that students are under pressure motivates them to prioritise and be more organised in their research. Again reality is that we never have enough time to do our tasks and deadlines are always looming. I would suggest that the articulation of ideas within the group, adherence to the PBL structure and support from the facilitator, could help overcome some of the problems experienced by individuals.

The tutorial group worked well in this case and the group dynamic was seen as a positive contribution to this. However, this points to the chance element of the group dynamic. How would a negative or dysfunctional group respond to PBL? This is alluded to by one of the participants when he makes the point in relation to the role of the chairperson. It was recognised that the chairing skills were highly importance as this influenced the functioning of the group and the progress made. This would lead one to suggest that some sort of pre-training for process skills, such as chairing skills and

awareness of group dynamics may be required. Woods (1993) suggests that this type of pre-training is necessary in order to make the most of the PBL experience.

4.7 Assessment

Assessment in this PBL module included formative and summative assessment. Formative assessment was used to help students reflect on what they had learned and to learn from the feedback provided by peers and tutor. On the conclusion of each problem self-peer and tutor assessment sessions were held. Given guidelines by the tutor each student would assess themselves, their peers and the tutor. Summative assessment was by tutor only and this was done on a pass/fail basis.

4.7.1 Self- assessment

> "Self-assessment promoted awareness of the importance of reflection in what I was doing but I was unsure of how to do it and I was not afforded 'reflective'time which was necessary, due to the time constraints."
>
> (Eddie)
>
> "...Promotes reflexivity and identifies areas of weakness in knowledge and skills and therefore helps focus and direct study and learning but it can be meaningless if student is experiencing negative emotions around learning process. Feelings of being 'swamped' may lead to negative self-assessment."
>
> (Alice)

Carol echoes this:

> "A true reflection? Can be isolating or very negative experience if one feels one's input has not been exceptional or very beneficial to the group as a whole."

4.7.2 Peer-assessment

> " I felt I had to constrain my comments because I did not want to offend anyone. We should all have been big enough to receive and accept the feedback. Sometimes it degenerated into a mutual admiration society."
>
> (Brian)

Alice maintained that peer-assessment gives another perspective which can yield new understanding, and whilst John agreed he maintained that there was no training given into how to give and receive feedback. Una held a similar view to Brian and suggested that perhaps we were not always as honest as we ought to have been.

4.7.3 Tutor Assessment

Some students' comments indicate that they still looked to the tutor as expert and as final arbitrator of progress:

> "Interim tutor assessment facilitated development over the course of the rest of the module."
>
> (John)
>
> " 'Expert' speaks – objective overview (hopefully) but tutor may be over-confident of ability in 'judging' performance and may be biased towards particular group members."
>
> (Carol)
>
> " I needed the stamp of authority or approval of the tutor and I see this as both a strength and a weakness. Despite self- and peer- assessment it was the tutor feedback that I saw as most important The formative assessment was useful but I felt unhappy about the summative assessment as I never really found out to what degree if what I had produced had been right or wrong."
>
> (Una)

4.7.4 Individual Assignments

As part of the individual assignments which would be assessed by the tutor, each student was required to write a reflective essay outlining what they considered they had learnt during the module as well as submitting an individual PBL module that they could use in their own subject area. I asked them how these contributed to their learning.

Many found it useful as it encouraged one to be reflective and critically analytical. John found it helped in the articulation of his understanding of the PBL process and it facilitated clarification of areas for development

Brian found it difficult to write the essay at first faced with the blank page. However, he felt it forced him to reflect at a deep level and subsequently found it an enlightening and fulfilling exercise. Eddie on the other hand in writing his own module descriptor, found it difficult to write real-world sustainable problems and referred to the time constraints, selling the idea to students and the designing of assessment criteria.

In relation to designing one's own PBL module students generally found it rewarding in that it was a practical opportunity to explore the challenges of PBL (writing problems and understanding the process) specific to ones own discipline area but were unsure of their ability in designing various aspects such as assessment criteria. Some comments suggest that students might have needed more guidance and feedback in writing their own module descriptor:

> " I was not sure that I had sufficient knowledge or skill to this properly at this point in the course."
>
> (Alice)
>
> "Not enough experience in assessment methodologies especially writing assessment criteria."
>
> (John)
>
> " I enjoyed the individual assignments simply because I am that type of person who likes to work in isolation. But I realised very early in the course,

that working in isolation defeats the whole purpose of PBL so I had to learn to work within a group environment throughout the course."

(Brian)

4.8 Analysis

Assessment proved to be the area about which the participants expressed most frustration and anxiety. Another issue raised was that of the value of peer assessment as some thought it was no more than a mutual admiration society or was not really honest, as no one wanted to hurt the feelings of others. The lack of training or guidance in self-assessment has been noted by Boud (2002). This has implications for both staff training and student preparation for self and peer assessment. If we expect students to do this form of assessment they should be adequately prepared. The question is how do we teach this?

Writing one's own PBL module highlighted for participants the difficulties as a teacher of writing suitable problems, developing assessment criteria, structuring the module, organising the resources and anticipating barriers to implementation that they might encounter. This proved a valuable experience for the participants as they saw how it related to their own subject areas and was a practical application of what they had been learning themselves as students of PBL. For some it was challenging as they realised the difficulties involved and the time investment required. This was a key element however in ensuring that everyone had some sort of module that they could incorporate in their teaching if they so wished. Perhaps those who subsequently tried out PBL would not have done so if they hadn't got a module ready and waiting?

Reflecting on what and how one was learning by writing a reflective essay helped participants to take time out to examine their learning. Reflection on and awareness of how we learn are abilities which educators need to develop in their students. This prompts them to think critically about the processes involved and to realize their own responsibility in the learning process.

4.8.1 Interpretation

If assessment drives learning then assessment issues in PBL have to be addressed. Evidence from the literature (Schwartz, Mennin and Webb, 2001), acknowledge that PBL assessment is problematic. On the other hand Swanson, Case and Van der Vleuten (1991) argue that because PBL requires PBL compatible assessment, teachers are forced to examine the nature and purpose of assessment. I would argue that this in itself is a valuable exercise.

Difficulties with assessment in this study could be seen from two perspectives. One was from the perspective of participants, who in assessing themselves and their peers, believed they had not the adequate skills to carry this out. Though this module did have explicit criteria for each assessment element, perhaps this was not emphasised enough. Combined with the scepticism of participant's ability to be honest and the lack of skills to conduct peer and self-assessment this led to a degree of frustration

The other perspective considered was the difficulty of how to implement PBL compatible assessments into the conventional curriculum. This issue arose through working on the design, planning and writing of participant's individual PBL modules during the course. As participants moved from the theoretical to the practical implementation of PBL in their own subject areas difficulties became more evident.

I would contend that this difficulty with assessment is contingent on such factors as; the ability to access certain skills; the adoption of PBL assessment into an otherwise conventional exam system and; the conceptual shift required to move away from the teacher as the only source of assessment and from norm referenced assessment to criteria referenced assessment.

4.8.2 Recommendations

The conclusions one can draw from the above is to make assessment criteria more explicit, develop assessment skills in students by perhaps devoting more time and training to this aspect, and to address the difficulty of PBL practitioners in incorporating PBL assessment into the conventional curriculum.

Participants in taking cognisance of not just *what* is learned but *how* one has learned has implications for staff practice in the classroom. Even if staff did not implement PBL this study shows how the experience influenced them to develop reflective abilities in their own students.

What could be highly significant on this module is the development of one's own PBL subject module as part of the assessment as this is likely to ensure a follow through once the module is completed. I would surmise that if the participants had not developed their own modules as part of the assessment then they might well have never attempted to implement PBL due to the time, effort and commitment involved.

4.9 The Teaching Perspective/Pedagogical Stance

In this section I was looking to find out how the students saw themselves as teachers (their pedagogical stance) and if their experience of the PBL module had changed their pedagogical stance in any way. I also wished to ascertain if any of them had implemented PBL into their own teaching and if so what difficulties they had encountered.

4.9.1 Teaching Conceptions

Asked to describe their conception of teaching, the participants identified themselves predominantly as facilitators of student-learning activity. The espoused conceptions were explained by being influenced by the constructivist philosophy of education and the importance of student involvement in their own learning. One participant whilst describing himself as a facilitator of student-learning also specifically mentioned the inherent nature of the role of teacher as transmitter of knowledge at times, and this I would argue whilst appearing to be contradictory, points to the fact that teaching

conceptions can be determined by subject matter and conditions under which it is taught.

The actual classroom practice of the teachers seemed to support their conceptions of teaching. All incorporated aspects of group work, role-play, discussion or some sort of interactive activity. Some were influenced in changing their actual classroom strategies as a result of the PBL module as it highlighted for them the benefits of student-involvement. Others maintained they had not been influenced in their conception of teaching but that the module had shown them how to implement student-centred strategies more effectively. Those students who implemented PBL in their teaching felt they had been given the skills to engage in it whilst those who did not implement PBL felt they could incorporate some of the strategies into their teaching such as reflectivity, ownership of learning and more interaction with the students.

Alice explained her pedagogical stance as follows:

> "In the course of the past two years I have become more convinced of the importance of student-centred learning. I have read more extensively on constructivism, action research, reflection and experiential learning and of course PBL and my initial belief that PBL is a teaching methodology congruent with the delivery of education/training ...has been confirmed. My philosophy of education has always been constructivist based and therefore it has merely been consolidated by my experience with PBL."

Brian's pedagogical stance was not changed as such, as he always agreed with the concept of teaching as facilitating student-learning activity. However, he acknowledged that the PBL module provided him with another mechanism to operationalise this. Like others he said the PBL module helped him to '*do PBL*"

Eddie would seem to be the only member of the group who sees himself as in the more traditional role of teacher. He acknowledges that the PBL module influenced his teaching but as a method he is not convinced it is for him. He had tried it out with his students but felt that it took too long to cover a topic using PBL and that at the end of the day he had to conform to traditional exams. It does seem however that he still sees the issue of role change as an issue:

> " I am more aware of the participative nature of the teaching and learning process. I see students as active collaborators with teachers in learning and teaching. I am not convinced that PBL is for me, as I feel there must be a certain degree of organisation of subject matter and control in its delivery."

The PBL experience influenced Carol to include more student-centred and interactive elements in her lecturing. Asked if the PBL experience had influence her pedagogical stance she had this to say:

> "Completely. Recognise value of student learning from self-driven process as opposed to standard didactic teaching. Even in the course of providing normal lectures I now try to include a few exercises that involve students probing and discussing different issues. This has worked extremely well. Always start first sessions with groups with interactive exercises. Some groups need more guidance than others in the full PBL process classes."

John said his conception of teaching did not change but it gave him some new tools to implement another student-centred approach:

> "Generally speaking I adopt an interactive approach involving small group work, some role-play and group work. I am endeavouring to use the PBL approach in as many settings as possible. Crucially my approach is to encourage student to take responsibility for his or her own learning and I feel the more interactive approach facilitates this better than traditional lecture based approach."

Though seeing herself as very much student-centred in her approach to teaching, Una still felt her pedagogical stance had been affected:

> "Yes definitely, in that I now would trust my students more and I would not feel such a strong need to be the centre of attention at times. I have always used group and pair work and interactive activities in my teaching, but I think I now leave more time for these and I do not interrupt the process as much. The PBL module has taught me the power of group work and the effectiveness of the learning that takes place by relinquishing the teacher role and becoming more of a facilitator. I also spend time in consciously helping students to reflect on the learning process and encouraging them to be more self-directed."

4.9.2 Role of the Tutor

The role of the tutor in the PBL process is significantly different from that of the traditional role of the teacher. There is a shift in role and emphasis from the dispenser of knowledge to the facilitator of acquiring of knowledge. The role of the facilitator is to convene learning sessions and to facilitate at a metacognitive level i.e. to promote critical and creative thinking and encourage students to reflect on their thinking processes and the development of understanding through expression of their ideas and confronting their assertions.

I had asked students to consider the differences between the PBL tutor and the traditional tutor role. Their answers indicated that they had all come to recognise the function and role but it was a bit redundant on my part as on reflection I should have asked if their observations had influenced them and if so in what way.

4.9.3 Implementation of PBL

Brian gained a lot from doing the module and felt that PBL is a very enjoyable and a far-reaching experience for students. The experience encouraged him to at least try PBL at some stage with his students. However, to date he has not implemented PBL due to lack of time needed for developing problems and organisation of modules. He hopes to engage a research student next year to write up and organise PBL modules under his guidance.

Eddie did try out PBL to see if it would work. He discovered that the time that the PBL process takes was too long to cover one subject of his extensive syllabus and that he was struggling to fulfil examination criteria.

Alice implemented PBL with a group of second year students. Her difficulties were not dissimilar to those experienced by others and included adequate time, resources, writing of problems, apathy of students and conventional exams.

Carol has used PBL with first year degree students. She would use it more frequently and for longer duration if there was more time to prepare work and more structured class time with students. Other barriers she encountered were:

> "Students understanding of the process – some students have a difficulty (as I do) with the notion of the 'problem' being called a 'problem' when in many scenarios it is not a problem. Also some problem with the fact that they think it is something which absolutely has to be solved and do not value the process enough. One student commented – this isn't about solving problems it's more like philosophy – questioning your questions and coming to realisations of things."

John has implemented PBL in his teaching and hopes to streamline his module for future initiatives. He says he needs to work on the assessment of the module. He feels it dovetails well with his pedagogical stance and crucially focuses students' minds on the reality of the necessity to take control of their own careers. He maintains this is very process driven, and a process for which the PBL process is an excellent driver.

John like others encountered similar problems in implementation but had this to say in conclusion:

> "In implementing PBL it is important to realise what is achievable in your circumstances and make appropriate adjustments to your module design and assessment. The complete purist non-structured approach or nothing will not succeed in many circumstances."

Una has been less than successful in her hopes of implementing PBL. She encountered the unusual difficulty of not actually having a pool of students with whom to try out PBL due to changes in her subject area. In the uncertainty she had to postpone her plans but determined to get involved as a facilitator/tutor with other colleagues who had expressed an interest in implementing PBL, who neither knew much about PBL nor had any training in it. She experienced difficulty trying to work with such colleagues as there was not a shared understanding of the nature of PBL and organizationally there was little support:

> "At the beginning it was exciting and I felt I would have a role to play as a facilitator and perhaps as tutor but I ran into problems. I felt the colleagues I worked with had a different conception of PBL than myself; it was time-consuming and inconvenient as we were from different Schools or locations and it felt as if we would be working in a void without adequate backup from management. The only avenue open for me at the moment is to incorporate some of the aspects of PBL into my day to day teaching such as giving more time to student group work, more time for reflection on learning and encouraging students to be more responsible for their own learning."

4.10 Analysis

It would seem from the above that even though most participants saw their pedagogical stance in terms of being facilitative and student-centred, the PBL experience has moved them even further in this direction. For most it meant they implemented PBL in their teaching and for those who for one reason or another were unable to actually implement PBL they still incorporated some aspects of PBL in their teaching.

Eddie seemed to be the least convinced of the applicability of PBL and I wondered if this was more to do with his conception of teaching than he realised. He had described his conception of teaching as both transmitter of knowledge and facilitator of student learning:

> "Teaching should include the transmission of information at some points in the learning process, particularly, in relation to technical subjects. However, this information transmission can be used to generate student-centred learning."

All but one engaged subsequently with PBL, some more positively than others. All experienced barriers to implementation and these included some well-documented ones such as lack of time, resources, and preparedness of students, conventional exams and lack of shared meaning among colleagues (Boud and Feletti, 1997). This has dimmed the enthusiasm of some but not of others where a more pragmatic approach has been adopted.

The findings also indicate the incompatibility of trying to half-do PBL. Eddie was trying to implement PBL in a conventional curriculum, which had to meet conventional exam criteria. Eddie also found student apathy a problem and said they preferred the more traditional approach. Does this show their lack of understanding of what PBL is about? Do students need to be prepared for PBL in advance of modules?

In conclusion Eddie had this to say about his experience:

> " My overall experiences have made me reluctant to engage with PBL again, mainly because of the workload, time constraints, exams and syllabus coverage."

4.10.1 Interpretation

It became apparent that how one views teaching and ones role in the teaching and learning process has tremendous implications for the adoption of an educational approach such as PBL. The literature refers to the conceptual change required of teachers in PBL (Dahlgren, Castensson and Dahlgren, 1998). If teachers have a student centred approach and see themselves as facilitators of learning rather than as transmitters of knowledge then it would seem that they would have less difficulty in adapting to PBL or adopting it.

Teachers, whose conception of teaching is more of the traditional teaching as telling type, not only have to accept the conceptual requirements of PBL but also may be personally unsuited to the new role. It is an enormous shift for a traditional lecturer used to standing in front of a large number of students with very little interaction, to have to adapt to a small group setting where they do very little talking and give even less direction. Though I would suggest that resistance to PBL is linked to staff's pedagogical stance it could also depend on such factors as an individual lecturers personality and subject area.

Barriers to implementation have been well documented (Boud and Feletti, 1997) and the participants on this module encountered similar ones. The time investment, resources available, support from Schools and Faculties and recognition of staff's contribution are essential factors in successfully implementing PBL on an institutional basis.

Among the recommendations in the literature for successful implementation of PBL, staff development and training are seen as key factors. Adams (1999) suggests that participation by staff as students, will help them gain the student's perspective and this is substantiated by this research. However, a fundamental question arises from this study that even if teachers have hands on experience of PBL, are trained in the role of facilitation and have support from a resource centre, it still does not necessarily follow that they will be encouraged to implement PBL as their pedagogical stance may be incongruent.

4.10.2 Recommendations

DIT through its Strategic Plan (2000) aims to encourage staff to assess new initiatives and new learning paradigms and encourages staff to initiate more creative and innovative approaches to the curriculum.

More staff should be encouraged to do the PBL module as the findings indicate that it is a motivating experience, it gives participants a real understanding of PBL and it ultimately provokes one to confront one's own conceptions of teaching and learning. In addition, participation by staff in the tutorial process as students will help them to gain the student's perspective.

Senior staff and management should also be encouraged to do this module as it would help them realise what barriers to implementation need to be overcome. As they generally have the influence to change or prevent initiatives this would give them an ideal perspective of what supports are needed for supporting innovating staff.

Follow- through is a key factor in promoting successful implementation and staff should be given the physical and mental support to engage in PBL. I think it is also important to encourage communication between practitioners on an on-going basis to support and encourage each other.

As the findings have shown, a significant conceptual change is required of teachers in PBL. This is a fundamental factor to take on board in the design of any future modules as future participants may not be as predisposed to the premise of PBL as the participants on the pilot module were. Increasingly staff are being pressurised to pursue professional development courses. Some see it as a way of boosting their promotional prospects and may not necessarily have any intrinsic interest in PBL. This would imply that one's pedagogical stance may not be compatible with PBL and ways of addressing conceptual change would have to be addressed.

As this is a key issue there should be a plan to address it and incorporate into future PBL modules. Perhaps specific 'problems' could be designed to explore pedagogical stance and alert practitioners to their beliefs and conceptions about teaching and

learning and how this might impinge on their response to PBL. Making explicit research relating to difficulties with the transition to PBL would also help in preparing future practitioners. Inviting previous participants of the module to talk about their experiences might also be of value, as the hands on approach would complement what the research indicates.

Based on my analysis, a teacher's ability to implement PBL is greatly enhanced through a well-structured, long-term programme of professional development. I maintain that the challenge for my own institute and myself is to take the work forward and encourage others to get the education and apply it.

Chapter Five

Discussion and Conclusion

CHAPTER 5
DISCUSSION AND CONCLUSION

5.1 Introduction

The final chapter begins with outlining the results of the member check that was carried out subsequent to my analysis and interpretation of the data from the questionnaire. A discussion ensues which aims to evaluate the research through consideration of the limitations of the study, conclusions, and reflections. This study aimed to examine the experience of staff on a PBL staff development module and to investigate the impact it had on their pedagogical stance. The study achieved its objectives and hopes it will result in new initiatives reflecting the wider understanding gained of PBL and initiate reflection and discussion about teaching and learning.

5.2 Member Check

Originally I had intended to conduct a focus group interview subsequent to the analysis of the questionnaire which each participant completed. I had thought this would be appropriate as the intention was to have an opportunity to probe the responses of the participants. I was looking for what Dey (1993) refers to as '*thick*' descriptions of the phenomenon under investigation.

However, after analysing the questionnaires, I decided this would now be rather redundant because the questionnaire had yielded a considerable amount of detail and depth that I had not anticipated. I did not want a repetition of data but I did need to ensure that participants had an opportunity for critical reflection through challenging and confronting views and ensuring the interpretations are reflective of the data. To ensure this and to enhance the credibility and integrity of the findings I determined it would be more appropriate to conduct a member check with each individual by allowing them to verify, question, agree or disagree with my research findings. I therefore sent the participants a draught of my findings to comment on.

Like the focus group this would act as an effective and efficient member check. Patton (1990, p. 336) maintains '*focus group interviews provide some quality control on data*

collection, participants tend to provide checks and balances on each other that weed out false or extreme views'

Member checks according to Mertens (1998, p. 182) occur where the researcher verifies with '*the respondent group the constructions that are developing as a result of data collected and analysed'*. And according to Gergen and Gergen (2000, p. 1028) '*A second significant means of disclaiming validity is to remove the single voice of omniscience and to relativize it by including multiple voices within the research report'*.

Several issues came up in the course of analysing the questionnaires and I used these as key points to seek clarification. (See Appendix E). Four of the six participants responded.

5.3 Summary of Member Check

Asked to comment on how they saw their own voice represented in the research participants commented that they had been accurately represented. As regards their level of satisfaction/dissatisfaction with the interpretations I had made based on their data, they were also satisfied except for one participant who questioned a particular detail. I subsequently corrected this.

Participant's responses relating to the question about the extent to which they might have been influenced by the time and physical space offered by the PBL module were inconclusive. Though some felt it had an effect it was deemed not to be of major importance.

The good group dynamic of the PBL group was considered to be highly important in affecting participant's experience. It worked well with this particular group, but it was suggested that for future modules more time should be provided for facilitating and fostering the team dynamic and that the facilitator could play a key role in this area. An interesting point was made by one of the participants in relation to peer-assessment and the group dynamic. Whilst the good group dynamic promoted an informal and enjoyable way of learning, this very lack of formality may have contributed to the difficulties of carrying out peer-assessment.

In asking how the lapse of time since doing the module affected their recall of the impact of the PBL module, it transpired that most participants had interpreted the question in relation to how they had subsequently applied what they had learnt from the module to their teaching. This indicated that this particular question would need to be refined in any further studies.

All of the participants on the module had volunteered to do the module and were enthusiastic and open-minded. Most of them had no set expectations as they had no previous understanding of PBL. Those who had were happy with the module as it met their expectations.

5.4 Discussion

The initial focus of my study was prompted by the interest colleagues had expressed in my experiences of PBL. I hoped that this study could depict the process and capture the essence of what it was like. I suppose the point was that in showing them the pros and cons of the experience they might be motivated to do the course themselves. I aimed to provide a valid and informative account. However, it became clearer to me as I read the literature and analysed the data that in fact the other aspect of my thesis, (pedagogical stance), was probably more important. I realised that one's pedagogical stance is overridingly important because if it is at odds with that of PBL then it is unlikely that such practitioners will be likely to be influenced to adopt PBL. I had been surprised by colleagues' antipathy and hostility in my discussions of PBL and had assumed that it was because they did not know enough about PBL, thus my proposal to describe and explain it. I began to realise however, that it is inextricably linked with one's pedagogical stance.

If one's pedagogical stance is of the '*sage on the stage*' variety then it would be difficult to adapt or adopt a PBL approach. On the other hand if one's pedagogical stance were more '*the guide on the side*' approach this would be conducive as is shares the same underlying assumptions about knowledge and learning. It was becoming clear to me why I had met such resistance from colleagues who were critical of PBL. This in turn raised further questions: If one's pedagogical stance is incongruent with PBL is

there any point in doing a staff development programme? Can staff development programmes change one's pedagogical stance? What measures can be taken to inform, train and prompt staff that are not engaged in PBL or against it, to consider it if an institution wants to promote PBL.

It would seem from this study that the staff development programme did succeed in prompting staff to confront their own perceptions about teaching and learning. It helped them to be more reflective about their own practices and stimulated them to examine and re-evaluate some of their own fundamental assumptions about the nature of knowledge as well as the nature of the educational experience. This I believe is an invaluable asset in preparing staff for PBL as it lays bare the assumptions about effective teaching and learning.

I have outlined what PBL is, and the role of the teacher in it. My review of staff training in PBL seems to indicate that it is not enough to present generic skills and tips in implementing PBL, but rather that conceptual change has to occur. It would seem to me that this conceptual change is more likely to occur if staff have experienced the reality of PBL themselves. The implications for professional education using problem-based learning are far reaching as both teacher and student adapt to new roles.

I started off by posing two questions in search of a thesis. I initially thought the descriptive aim to be more relevant but in the course of the research found the second one of pedagogical stance to be emerging as more important. In fact what I considered to be my minor aim to begin with is in fact the major one and has helped crystallise my emerging thesis. I consider this to be an important area worthy of further research as it could have fundamental consequences for future PBL modules.

A 'few interested bodies' could in time turn into a 'critical mass' and more widespread use of PBL in courses and modules across the DIT and other institutions could be envisaged. For those of us who are convinced and hope to implement PBL curricula, this research encapsulates the 'experiences' we have had. By identifying the weaknesses and suggesting what changes or supports can be put in place to rectify them, we can

hopefully avoid future pitfalls. This research may act as a catalyst for colleagues to try something new, but if not at least it will be informative.

5.5 Limitations of the Study

This study sought to examine changes both in teaching and learning brought about by a staff development programme. It is necessary to be aware that other influences extraneous to the course may have brought about some influence.

Also a certain amount of bias is involved as the staff members on the course were all volunteers and as such were probably well predisposed towards PBL, as generally volunteers tend to be more open to change.

Time constraints prevented me from carrying out interviews, which I initially felt would be more appropriate and although I think the questionnaire provided a wealth of data I am conscious that responses may have been influenced by the structure of the questions rather than having the opportunity to conduct a more free flowing interview where unscheduled issues may have cropped up.

5.6 Conclusion

This study aimed to investigate the experience of staff on a PBL staff development module and to evaluate the impact on their pedagogical stance, with a view to promoting awareness and thinking about teaching and learning. Whilst it is necessary to acknowledge that a certain amount of caution should be considered in drawing conclusions from this study, as it did not involve a large sample, the findings nevertheless provide encouraging results.

The findings indicate that the PBL module was seen as a success by participants in providing them with a '*hands on*' experience of the understanding and application of PBL. By the end of the module they were able to design, write and manage their own PBL curriculum modules and were able to appreciate the issues involved in implementation. Teamwork skills, development of critical thinking and the importance of reflection in learning were acknowledged.

The findings of this study show that even if participants did not implement PBL, there is nevertheless an important effect on participants understanding of the nature of teaching and learning and their role in it. Fundamentally there is recognition that one's pedagogical stance is an important factor in one's openness to accepting other learning theories. Even though the pedagogical stance of participants in this study was generally compatible to that of PBL they were still influenced by PBL to pursue a more interactive approach in their teaching, to promote reflexivity in their students and to encourage their students to recognise their own contribution in the learning process. This in itself is a worthy result of the training experienced by these staff members as the efficiency with which an organisation manages, develops, motivates, involves and engages its employees is a key factor as to how those organisations ultimately performs.

The following is a summary of the main recommendations of this research:

- More staff should be encouraged to participate in PBL training.
- More senior staff and management should be encouraged to do the course so that they realise the reality and possibilities of PBL. This in turn may prompt them to provide both the intellectual and physical supports (resources and facilities) that are needed, which ultimately contribute to the development of the DIT Strategic Plan.
- 'Communicative spaces' should be provided for continued support for staff interested in PBL and in general where debate, discussion and exchange of ideas could occur.
- Training in self and peer-assessment should be provided prior to engaging in the PBL module to ensure a more effective transition to this type of assessment.
- Prompt and transparent feedback should be provided to participants for the individual assessments submitted.
- Training in or awareness of group dynamics should be incorporated in the programme.
- Future PBL modules should incorporate specific measures to address pedagogical stance. Perhaps a 'problem' to identify and make explicit participants pedagogical stance should be included as well as inviting past participants of the programme to discuss and exchange their experiences.
- Further research needs to be conducted on the wider target audience of staff i.e. lecturers who are not engaging in PBL initiatives or who are against it. There is a need to research effective ways of informing, training, and challenging their pedagogical stance.

Probably the most important lesson to emerge from this study is the need for discussion and communication. Whereas actual changes on the ground result from detailed changes in management practices, the precursor of any change is education and the raising of awareness. I have discussed my recommendations with the Postgraduate Diploma co-ordinator and it is envisioned that some of these recommendations will be taken on board for future modules.

This study has highlighted the importance of education and training of staff to realise the implications of adopting a new educational approach. This research will be of interest to staff who wish to enhance their understanding of the PBL process in order to facilitate and enable student learning. The challenges that changing to a PBL curriculum poses were considered such as adapting to new roles, questioning our pedagogical assumptions, using alternative assessment methods and dealing with issues of implementation. A fundamental issue arose in that compatibility with PBL is contingent on one's pedagogical stance and this has implications for any staff development programme that wishes to encourage a wider cohort of staff to use PBL.

One of the goals of the DIT Strategic Plan (2001, p. 9) is ' *To develop [a] new learning paradigm with a focus on problem based and student group self-learning, with academic staff facilitating these processes*'. I consider this study to be one step in initiating and leading the kind of change that DIT envisions for staff, students and society.

5.7 Reflections on the Journey

The research process has been a journey of learning and discovery. I initially found it challenging contending with academic conventions. Citing, referencing details seem to submerge my own voice. Holliday (2002, p. 143) acknowledges that this is not unusual for novice researchers ' *academic writing is an 'area for struggle' in which students and researchers can find it hard to achieve personal power and voice'*. He and others promote a new way of thinking in what he refers to as progressive qualiltative research whereby researchers are encouraged to establish a personal presence within the established conventions. This is what I have attempted to do.

I found it encouraging coming across researchers who posit alternative ways to carry out research, who question assumptions about knowledge and who challenge and critique traditional conventions. Influenced by this, I would have liked to take a more post-modernist approach to this research and to try out poetry, metaphor or storytelling. However, it was too late in the process before I was convinced of the value and acceptability of this approach, but more significantly perhaps, is the fact that I would not have been brave enough. It is after all much harder to take the road less travelled. I cannot let the opportunity go by without at least ending with a postmodernist twinge and thus I conclude with a short metaphor of what the PBL experience was like for me.

*Heading into the unknown (**PBL**) I was excited and motivated in seeking new pastures. Unfamiliar terrain (**role change**) made me uncertain at first but because of the good signposting (**tutor**) the company of fellow travellers (**the group**) and the route map (**tutorial process**) it was not an insurmountable journey. Trying to scale the mountains (**knowledge peaks**) we encountered, required new skills, and improvement of others, but we relied on each other's strengths and supported those that were not as accomplished. We went up side ways and by ways having fun and discovering interesting asides along the way. But more than once we ended up in a few cul de sacs so we had to use our compass (**the kernel of the problem**) to get back on the right track. For some the rucksacks were too heavily packed (**preconceptions**) and some of the baggage had to be discarded enroute. For others the rucksacks weren't adequately packed at all and procurement of new items became a priority (**independent study**). Frustrations set in at times when the journey was too frenetic as we were propelled towards our destination. A bit of sight seeing would have been nice but time was of the essence. When we did reach our destination (**solution/presentation of problems**) there was a sense of achievement, satisfaction. And relief! Of course like a good girl-guide I had thought I had known all along in which direction I was travelling (**student-centred teaching**) but realised as we entered new territories that there is always something new to experience (**PBL**). I knew I was well prepared for any future solo adventures that I might consider (**own PBL initiatives**) and that keeping in touch with my fellow travellers (**PBL community**) it would not be such a challenging trek next time.*

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Appendix A

PBL Module Descriptor and Promotional Material

PBL Module Descriptor and Promotional Material

Course Aim

The course aims to build on the work completed in the Postgraduate Certificate by encouraging lecturers to further develop their chosen educational interests in learning and teaching Participants will also gain skills in research and problem-based learning and will learn how to apply these skills.

Course Timetable

The Postgraduate Diploma in third level Learning and Teaching consists of three modules. In any year a selection of diploma modules will be offered. The Diploma would normally be completed part-time in one academic year with participants taking one module each ten week term. Diploma Modules will be scheduled for three hours per week in workshops/tutorials. As this course is a problem-based learning course where participants work in groups on problems, an attendance of 80% is mandatory. The majority of course preparation work will be completed by participants outside of contact hours.

Model of Learning: Problem-Based Learning

Problem-based learning (PBL) is a total approach to higher education which is one of the most significant innovations in education for the professions. pal is the total framework, model of curriculum design, and tutorial process for the Postgraduate Diploma. Problem-based learning is the learning that emerges from working towards an understanding and resolution of a real-life problem. Problem-based learning differs from traditional learning in many ways. In the teacher-based model the main teaching method is the lecture. In the problem-based learning the main teaching method is the PBL tutorial. In the teacher-based model, learning materials are presented by the teacher. In PBL the learning materials are selected by the students to study the learning issues that emerge from the problem. The learning processes used in PBL include problem-based learning tutorials, problem-based action learning and independent study.

PBL is a motivating way to learn as learners are involved in active learning working with real problems. As a result, what they have to learn in their study is seen as relevant and important. Problem- based learning is centred on a problem which engages students' interest, compels them to take it on as their responsibility, and stimulates self-directed learning. In a PBL curriculum, students can not be passively dependent but must become active independent learners. They will only be successful in assessments if they demonstrate higher order thinking and problem solving skills. Students develop the key skills of learning how to learn, communication and teamwork as well as developing their understanding of specific knowledge areas. Assessment of Learning

The assessment strategies used in this course are compatible with a problem-based learning approach, and include self, peer and tutor assessment. Modules will be assessed on a pass/fail basis.

Problem-Based Learning Module

Aim

The aim of this module is to empower participants to design, deliver, assess and evaluate problem-based learning curricula. This module will provide a foundation for more advanced level study for those who choose to progress to the Masters in third level Learning and Teaching,

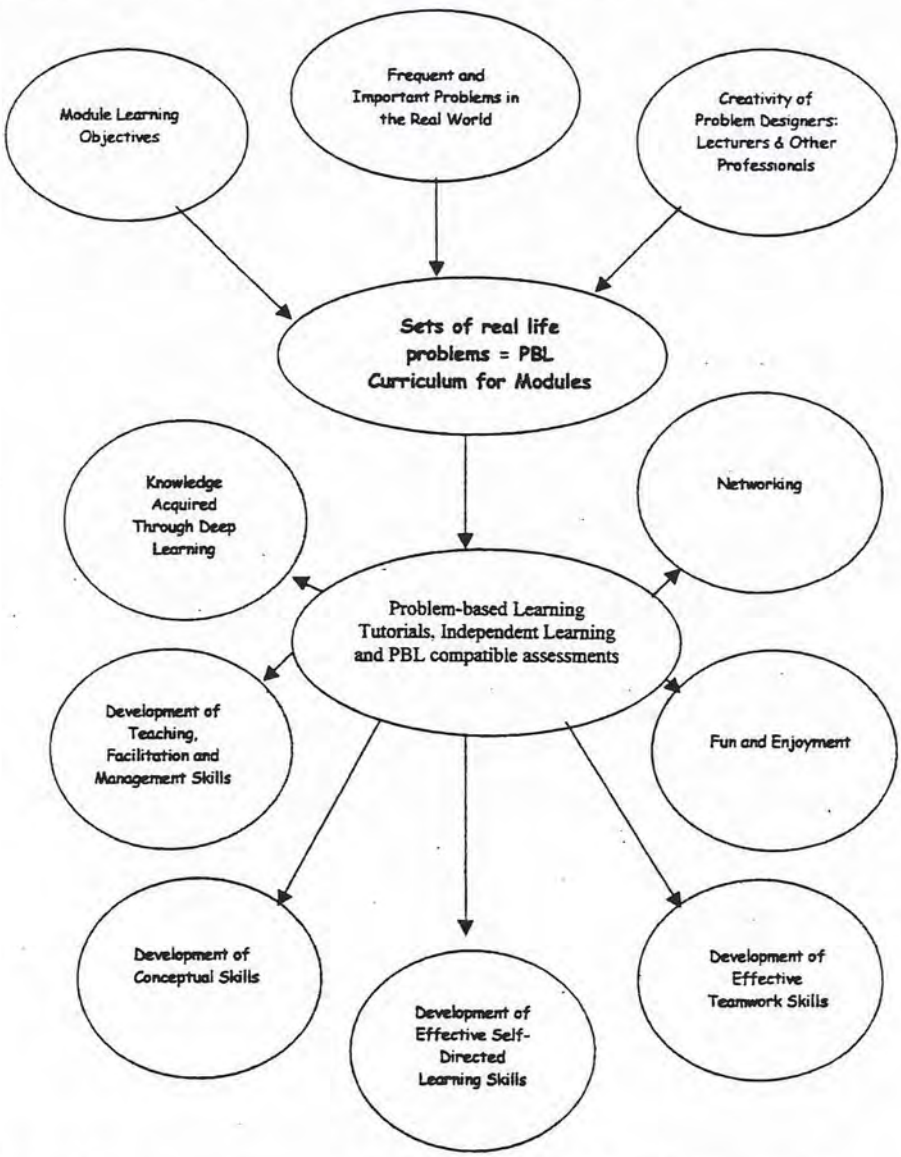
Key Objectives

Upon completion of this module, participants will be able to:

- Compare and contrast the theory of problem-based learning with other learning theories.
- Apply the theory of problem-based learning to PBL initiatives in , their own teaching contexts.
- Debate the pros and cons of problem-based learning, including challenges in implementation.
- Write problems using PBL problem criteria.
- Design and manage a problem-based learning curriculum.
- Facilitate a problem-based learning tutorial.
- Plan assessment strategies compatible with problem-based learning.

Course Document -
Postgraduate Certificate, Diploma and Masters in Third Level Learning and Teaching

Table 18: **Postgraduate Diploma in Third Level Learning and Teaching:**



Model of Problem-based Learning for Postgraduate Diploma in Third Level Learning and Teaching. **Terry Barrett**

Appendix B

Questionnaire

Questionnaire

DIT Postgraduate Diploma in Third Level Learning and Teaching

Problem-based learning Module

The information you provide here will help in deciding which issues to explore in more depth in the follow-up interview. As you answer these questions, think about your experiences on the ten-week PBL module that began in November 2000.

In this section I am interested in collecting information regarding your academic and professional background.

1. **Name:** _____
2. **Faculty:** _____
3. **Department:** _____
4. **Subject:** _____
5. **Position:** _____

6. **Why did you sign up for the PBL module?**

_____

_____

_____

_____

_____

_____

_____

_____

_____

7. **Had you any previous experience of PBL before this module? If so what?**

8. **Write a short account of your teaching experience and background.**

This section looks for information on your views about the ten week PBL module you undertook in November 2000

Participant Reaction

On a scale of 1 to 5, how would you rate the following? 1=(very good) 5= (very poor). Please circle.

9. **Was the PBL module interesting?** **1 2 3 4 5**
10. **Were the topics studied relevant?** **1 2 3 4 5**
11. **Were the organizers well informed and organized?** **1 2 3 4 5**
12. **Did the module re-energized and stimulated you?** **1 2 3 4 5**
13. **What was helpful in the learning environment?**

14. **What was unhelpful in the learning environment?**

15. **What was missing in the learning environment?**

16. **How would you sum up your reaction to the module?**

Learning Perspective

17. **From your experience on the PBL module, what are your views on the PBL tutorial process?**

18. **During the course of the module you worked on two problems. Problem 1 involved making a presentation to other staff members, explaining and justifying the use of a PBL module. What were the main things you learnt from working on this problem?**

19. **Problem 2 required you and your colleagues to deliver a visual presentation of what PBL is about. What were the main things you learnt from working on this problem?**

20. **From your experience, what were the strengths or weaknesses of the following?**

- **Group work**

  Strengths:

Q20. (continued)

Weaknesses:

- **Independent study**

Strengths:

Weaknesses:

- **Taking on the roles of scribe, reader, chairperson**

  Strengths:

  Weaknesses:

- **Guest speakers**

Strengths:

Weaknesses:

Assessment

21. Assessment included self, peer and tutor assessment. What were the strengths or weaknesses of each of the following?

Self assessment

Strengths:

Weaknesses:

Peer assessment

Strengths:

Weaknesses:

- **Tutor assessment**

Strengths:

Weaknesses:

- **Writing of a reflective essay**

  Strengths:

  Weaknesses:

- **Designing your own PBL module**

  Strengths:

  Weaknesses:

Teaching Perspective / Behaviours, Attitudes and Impact

22. **Which of the following conceptions of teaching best describes what you consider teaching to be about. Please tick one only.**

a) Teaching as the transmission of information

b) Teaching as organizing student activity

c) Teaching as facilitating student-learning activity

Comments on your choice:

23. **Has your conception of teaching changed in any way as a result of doing the PBL module? If yes, explain how.**

24. **What methods do you currently use in your teaching? e.g. lecture, class discussions, role-play, group work.**

25. **Have your teaching methods changed in any way, as a consequence of doing the PBL module? If yes, explain.**

26. **What do you consider the main difference between the role of the PBL tutor and the role of the lecturer?**

27. **Have you implemented PBL subsequently to doing the module? Explain why/why not?**

28. **If you have implemented PBL in your teaching, what sort of barriers or difficulties did you encounter?**

29. **Any other comments?**

Thank you for taking the time to complete this questionnaire.

Please return to Una Coleman
Room 403
DIT Bolton St
Dublin 1

una.coleman@dit.ie

Appendix C

Participant Agreement Letter

Participant agreement letter

November 20, 2002

Dear Colleague,

I have undertaken to do my research for the M.A in Third Level Learning and Teaching on problem-based learning. I am writing to ask for your agreement to participate in my research by agreeing to be interviewed in relation to your experiences on the PBL module run by the Teaching and Learning Centre from November 2000 to February 2001. The proposed title of my thesis is **Staff perspectives on the experience of a problem-based learning staff development module: Impact on their pedagogical stance.**

The purpose of the research is to examine your experience as a student of PBL on this ten week module and secondly to see if and how it has impacted on your teaching. What I would require you to do would be to fill out a questionnaire and return it to me. I intend to analyse the data from the questionnaire and organize a follow-up focus group interview (the whole group together).

All information gathered in this study will be treated as confidential and staff that agree to participate will remain anonymous in any report or publications that arise from this research.

I enclose an informed consent form that I would ask you to sign if you agree to participate in the research. I would appreciate it if you could sign and return it to me as soon as possible and on receipt of it I will send you the questionnaire. If you have any queries or require further information please contact me at: 402 3904.

Thanking you in anticipation of your support,
Yours sincerely,

Una Coleman

Room 403
DIT Bolton St
una.coleman@dit.ie

Appendix D

Statement of Informed Consent

Statement of Informed Consent

PBL Participants Una Coleman

I, _____, agree to participate in the research project on 'Problem-based learning' that is being conducted by Una Coleman from DIT.

I understand that,

- The aim of the research is to record my experience as a student of the PBL module and the impact on my teaching. The study involves filling out a questionnaire and subsequently taking part in a focus group.
- The information I provide will be treated as confidential and I will remain anonymous in any report or publications that arise from this project.
- The findings of the research may be published
- I have read and understand this information and I agree to take part in the study.

Una Coleman

_____

Appendix E

Member Check E-mail

Member Check E-mail

April 4th, 2003

Dear colleague,
Further to the questionnaire you filled out and returned I have written a draft chapter on the findings, which includes analysis and interpretation. To ensure the trustworthiness and transparency of the findings, I am conducting a member check by providing you each with a copy and ask you to consider the following:

a) Comment on how you see that your own voice has been represented in this research.

b) Comment on your level of satisfaction/dissatisfaction with the interpretations I have made on the basis of your data.

I am also seeking some clarification on the following points:

a) To what extent do you think the mental time and physical space offered by the PBL module influenced your experience of PBL?

b) The good group dynamic of the PBL group was mentioned several times. To what extent do you think this influenced your experience of PBL?

c) How has the lapse of time since doing the module affected your recall of the impact of the module?

d) Comment on whether your reasons for doing the PBL module affected your reaction to the module?

In keeping with the agreed policy of confidentiality, I have used pseudonyms for each of you. Please respond as soon as possible and not later than April 18th, 2003. Please respect the confidentiality of the attached document.

Many thanks for your co-operation,

Una Coleman

Room 403

DIT Bolton St

una.coleman@dit.ie Ph: 402 3904